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Technical
Center

Fort Worth,
Texas

An SCS User's Guide for:

CREAMS

A Field Scale Model for Chemicals, Runoff, and Erosion from Agricultural Management Systems

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United States Department of Agriculture
Soil Conservation Service
P.O. Box 2890
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Subject: MGMT SERV-3-Progress Report on SWAM Model

Date: June 10, 1982

To: Walter F. Rittall, Director of Water Quality Project Implementation, SCS, NHQ
Charles E. Fogg, Environmental Engineer, SCS, NHQ
Charles E. Terrell, Water Quality Coordinator, Ecological Sciences, SCS, NHQ
James B. Newman, Land Treatment Coordinator, Land Treatment Program, SCS, NHQ
William C. Fecke, Inventory and Monitoring, SCS, NHQ
Thomas Dempster, Economist, Economics, SCS, NHQ
Milton W. Meyer, Quantification of Soils Data, Soils, SCS, NHQ
Gary A. Margheim, Environmental Coordinator, SCS, NHQ
Maxine H. Barron, Program Analyst, Program Integration, SCS, NHQ
Dick Phillips, Water Quality Project Implementation, SCS, NHQ
Steve Baima, Program Specialist, Water Quality Project Implementation, SCS, NHQ
Robert Pasley, Staff Leader, NES, SCS, Lanham, Maryland

Enclosed is the SWAM Progress Report of May 3, 1982, which I reported on and agreed to send you the June 8th PATI Committee meeting. Figures 1 and 2 are draft figures showing the processes of the SWAM model and the required input and are from a paper that Don De Coursey plans to present at the ASAE summer meeting.

It is my recommendation that the PATI Committee Chairman, Walt Rittall, arrange for a briefing for the PATI Committee and others concerned with water quality evaluation from Don De Coursey, SWAM Coordinator at an early date. This should be held well in advance of the proposed workshop for SCS that is planned for the spring of 1983.

Robert E. Rallison

ROBERT E. RALLISON
National Hydrologist

Enclosure

cc:
Neil F. Bogner, Associate Deputy Chief, Technical Development and Application, SCS, NHQ
Buell M. Ferguson, Director of Engineering, SCS, NHQ
Dr. David A. Farrell, National Program Staff, ARS, Beltsville, Maryland
Joe DelVecchio, Civil Engineer, ARS, Tifton, Georgia
Gerald Welsh, Research Coordinator, ARS, Beltsville, Maryland

United States Department of Agriculture
Science and Education Administration
Agricultural Research Western Region Rocky Mountain Area
301 South Howes P.O. Box E Ft. Collins, Colorado 80522

May 3, 1982

SUBJECT: SWAM Progress Report

TO:

C. V. Alonso	S. Y. Liong	K. E. Saxton
J. B. Burford	R. G. Menzel	F. R. Schiebe
D. A. Farrell	R. D. Miskimins	J. D. Schreiber
G. R. Foster	M. P. Molnau	R. E. Smith
W. J. Gburek	W. L. Nutter	F. D. Theurer
W. G. Knisel	H. B. Pionke	
H. Kunishi	K. G. Renard	
R. A. Leonard	C. W. Richardson	

It has been some time since I reported to you on our progress in the small watershed model development project. That was November 4, 1981, and at the time we were making good progress. Shortly thereafter we became caught up in the ARS Strategic Plan. I am just now getting caught up from everything that got pushed aside at that time. If it had not been for Harry Pionke I would feel much worse than I do. He has been pushing ahead and is starting to develop subroutines to handle the chemical movement through the channel system. As some of you know he is also making recommendations for a series of papers to appear in Volume 3 of the SWAM report. I will discuss these a little later in this report. In a recent letter that I received from him he suggested that we get more specific about documentation and set some deadlines. I agree with him so a little later in this report you will see a suggested format and some dates. Please review them and get back to me if you concure.

Since my last letter, I have met with Carlos Alonso, George Foster and Roger Smith on the erosion and sediment routing aspects of SWAM; Yui Liong on the groundwater model; Myron Molnau on snow melt; and Keith Saxton on ET and crop cover components. Roger Smith has made excellent progress in combining the water, erosion and chemistry components of CREAMS into one program so that natural feedback loops can be developed. We want the new version of CREAMS to be the heart of the SWAM model and Roger has incorporated, or will, most of the dynamic characteristics that we wanted. It will take Roger a few more months to complete what he intends to do, so we have selected a recent version of CREAMS II to use as the main building block of SWAM. When he completes CREAMS II, we will pull the old one and insert the new one. Roger's version includes all of the erosion concepts that George Foster felt should be included. George is going to review and work with these routines and expand them to include multiple particle sizes and their impact on deposition. Roger has also included several of ET and crop cover concepts that Keith Saxton has in the SPAW model and Jimmy Williams has in the EPIC model. As soon as Roger completes the testing and verification of CREAMS II, we intend to compare output and input requirements with those of the SPAW model. Roger also has built into the CREAMS II model most of the concepts embodied in Myron Molnau's snow melt routines.

As most of you probably know, Dr. Alonso will be moving to Fort Collins permanently in June to work with me on the SWAM model. Between now and then he will be working on the interfaces between the water and sediment in the channel and that of the reservoir model of Frank Schiebe and Ron Menzel. Richard Miskimins, the computer programmer working with me, is working on taking the output from the root zone of the CREAMS II model, routing it with Roger Smith's kinematic model and thus making it input to the groundwater model of Bill Gburek. As soon as Carlos gets to Fort Collins we will start interfacing the CREAMS II model to the channel and developing the main program. At this same time, we will start adding in the channel chemistry components that Harry Pionke, et al. are completing. The last components to be incorporated will be Wade Nutter's forest version of CREAMS and the synthetic meteorological inputs generated by Clarence Richardson's model.

At this point, I feel that it is important to consider format and set some deadlines for completion of written materials for the three volumes of SWAM. The deadlines I set in my previous correspondence were eclipsed by the Strategic Plan. The ones I am setting here are firm because we need to start now preparing for a workshop with SCS and other users to introduce SWAM and get started, with their help, in testing it.

Included with this report is a very rough draft of my ideas for the format of the SWAM Report. I propose that it be published as three separate volumes with Volume III, the supporting papers, being completed first because they can be presented prior to completion of documentation and the handbook. Harry Pionke suggested that we have a meeting (workshop, symposium, or whatever) some time in the spring of 1983 to present the model to user agencies, and that the papers of Voluem III be presented at this time and be given out as a handout. We would also have as a handout rough drafts of the SWAM documentation, Volume I, and the handbook, Volume II. The Volume III handouts would be in final form, but Volumes I and II only rough drafts. If we assume that the meeting will be about one year from now, then I suggest we get rough drafts of the papers in Volume III completed by August 1 and peer reviewed and in final form by January 1, 1982. We would set March 1, 1983, for draft reports of the Volume I and II. The titles and authors suggested in these volumes are both open to suggestions. Please feel free to comment on any or all of them and to make recommendations or volunteer to aid in writing any of the papers. We will be able to use all the help we can get.

The largest unresolved problem in development of SWAM is the issue of data sets for testing. I know that J. B. Burford has contacted most of you for help in identifying viable sets for us to use and he has a few suggestions, but for the most part they are of very limited extent. Most of you have included with your subroutines at least one and in some cases several data sets that you have used in testing or developing your model. These are all going to be helpful, but more are needed. I hope to have a meeting with J. B. some time soon after Carlos comes on board to set a format and identify other sources. I will keep you informed of progress and needs as they develop. However, if you have any new ideas that could help, please let me know.

I realize that all of you have enough to read without getting an epistle like this from me, but it has been awhile since I wrote you and I am getting to a point where I need more help so I felt it necessary to bring you up to date. Would you please review and comment on the format of the SWAM I, II and III reports, authorship, deadlines and proposed workshop and get these back to me by May 24, 1982, so I can start inhouse publication prospectus proceedings.

If you have any questions whatsoever, please feel free to call.

Donn G. DeCoursey

DONN G. DECOURSEY
SWAM Coordinator

DGD:ccl/1-4

Enclosures

cc:
T. Army
D. N. Baker
H. L. Barrows
J. Burt
G. Comer
H C Cox
J. Del Vecchio ✓
P. J. Fitzgerald
R. F. Follett
J. G. Hartsock
N. I. James
M. E. Jensen
J. R. Johnston
E. L. Kendrick
J. C. Lance
L. D. Meyer
E. C. Nicholas
R. D. Plowman
C. D. Ranney
J. C. Ritchie
S. Robbins
M. J. M. Romkens
R. R. Schnabel
E. H. Seely
A. N. Sharpley
J. M. Vetterling
R. D. Wauchope
R. C. Wendt
J. R. Williams
J. B. Wilson
A. Wolf
D. A. Woolhiser
D. E. Zimmer

SWAM
Volume I Documentation

Introduction - DeCoursey

Watershed Delineation - DeCoursey, Alonso

Response from a Unit Area - Smith, Nutter

CREAMS II - Smith

This is a summary of CREAMS II that describes the model operation including plant growth, ET, nutrient cycling, infilration, pesticide movement, snow melt and accumulation, soil temperature structure, soil moisture redistribution, application to forest and range situations and overland flow.

CREAMS Forested Areas - Nutter

This is a description of the CREAMS modified for timbered areas. Description would cover about the same information as for CREAMS II.

Channel Processes

Routing Water - Alonso

Kinematic wave, diffusive wave and complete solutions

Routing Sediment - Alonso

Sediment transport by size fractions and aggregation or degradation of the channel with channel armoring

Routing Nutrient and Pesticide Concentrations - Pionke, et al.

Reservoir Processes

Routing Water and Temperature Stratification - Schiebe

Routing Sediment - Schiebe

Chemical Processes - Menzel

Biological Processes - Menzel, Schiebe

Groundwater

Flow in the Unsaturated Zone - Smith

Flow in the Saturated Zone - Liong, Gburek, DeCoursey

Dissolved Chemicals - Gburek

Input Data

Real Data - Alonso, DeCoursey

Synthetic Data - Richardson, Woolhiser

Outputs - Alonso

Output Data - Alonso, DeCoursey

Sensitivity Analyses and Example - DeCoursey, Alonso, et al.

SWAM
Volume II Users Manual

Main Program Structure - Miskimins, Alonso

Watershed Delineation - DeCoursey, Alonso, Miskimins

Structure of Subprograms

- Unit Area Processes
  - CREAMS II - Smith
  - CREAMS Forested - Nutter
- Channel Processes
  - Water - Alonso
  - Sediment - Alonso
  - Chemicals - Pionke, et al.
- Reservoir Processes
  - Water - Schiebe, Alonso
  - Sediment - Schiebe, Alonso
  - Chemical - Menzel
  - Biological - Menzel, Schiebe
- Groundwater
  - Unsaturated Zone - Smith
  - Saturated Zone - Gburek, DeCoursey
  - Dissolved Chemicals - Gburek

Input and Output Formats ← SCS INPUT

- Input Real Data - Alonso, Miskimins
- Input Synthetic Data - Richardson, Woolhiser
- Output - Alonso, Miskimins

Example Applications - Alonso, et al.

SWAM
Volume III Contributing Papers

Introduction - DeCoursey

An Assessment of Phosphorous Model Development Needs - Pionke, et al.

Applicability of EPC Concepts to Diverse Soil Systems - Kunishi, et al.

The Role of Desorption Kinematics in Modeling the Transport of Adsorbed Chemicals - Sharpley, et al.

Leaching of Green Crops and Their Residues as a Source of Nutrients in Agricultural Runoff - Schreiber

Phosphorus Extraction and Enrichment Ratios or Soil and Water Properties that Affect EPC - Wendt

Relationship between Labile P and Soil P Test Values - Wolfe, et al.

An Assessment of Pesticide Modeling Needs - Leonard, Wauchope, Pionke

Methods for Estimating K_d, K_{oc} and K_{ss} - Pionke, SCS Employee

who?

An Assessment of Nitrogen Modeling Needs - R. Schnabel, et al.

Input Climatic Data Generation (this could be two separate papers--one on daily data and one on disaggregation) - Richardson, Smith, Woolhiser

A Snowmelt Model - Molnau

A Summary of the Difference Between CREAMS and CREAMS II - Smith

Application of CREAMS to a Forested Area - Nutter

The SWAPET Model - Saxton

Flow in the Unsaturated Region - Smith

A Groundwater Modeling Concept - Gburek, Liong, DeCoursey

Watershed Segmentation - Alonso, DeCoursey

Flow and Sediment Routing - Alonso

A Reservoir Model - Schiebe, Steffan, Menzel

Fig 1 SMALL WATERSHED MODEL (SWAM) FROM DRAFT DE COURSEY PAPER

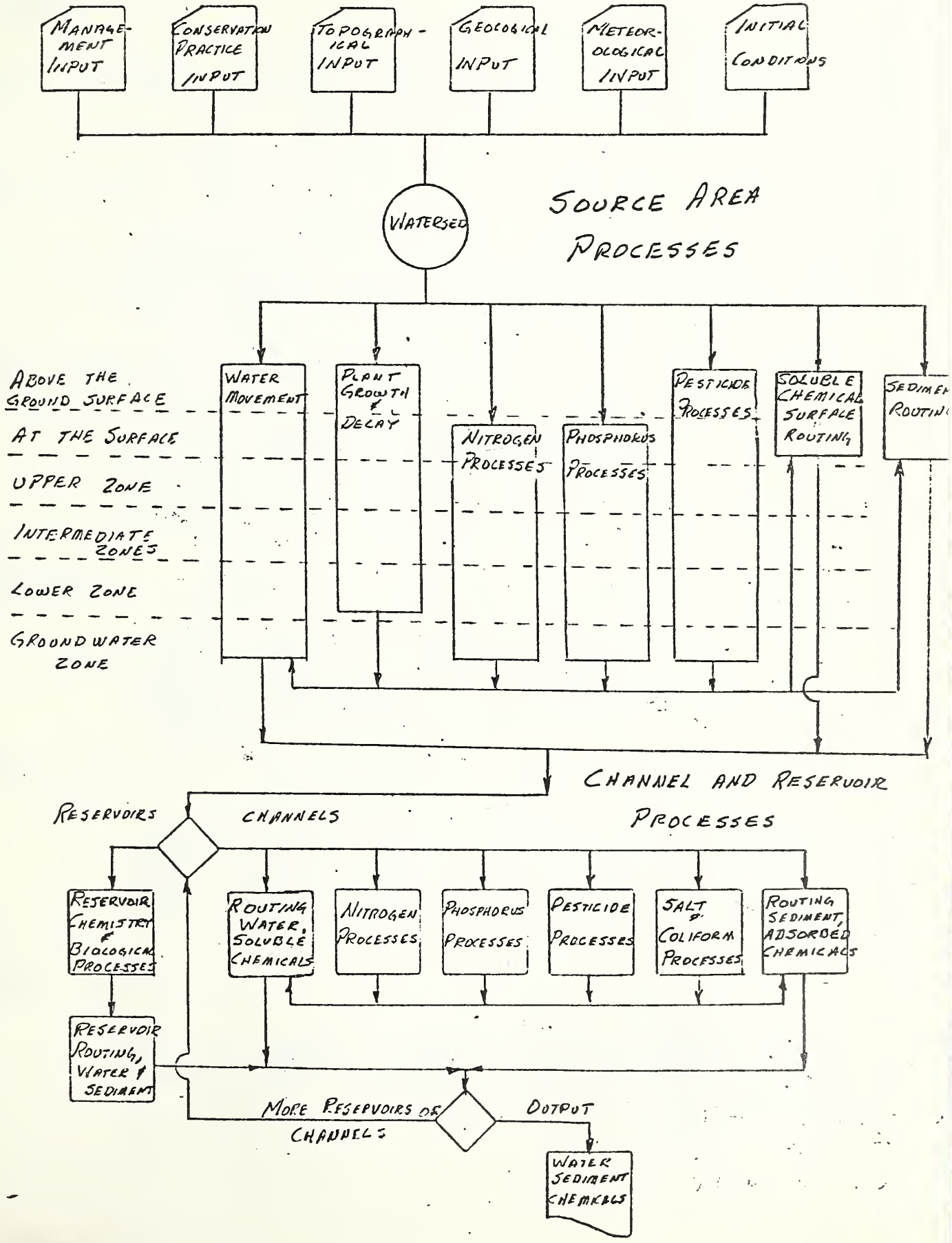


Fig 2 SWAM INPUTS

FROM DRAFT DeCoursey PAPER

MANAGEMENT

- LANDUSE
- CULTURAL PRACTICES
- NUTRIENTS WHEN & HOW APPLIED
- PESTICIDES WHEN & HOW APPLIED
- ANIMAL STOCKING RATES & WASTE PROD.

CONSERVATION PRACTICE FOR EROSION CONTROL

- CROPPING - CONTINUOUS STRIP ROTATIONS
- WATER WAYS - GRASS BUFFER ERODING
- CONSERVAT. TILLAGE & TERRACES - CONVENTIONAL PARALLEL TILE-OUTLET
- WOODLAND & PASTURE CONDITIONS
- GULLIES
- PONDS & RESTRICTED FIELD OUTLETS
- WATER SHED CONFIGURATION, SLOPE & SHAPE

TOPOGRAPHICAL CHARACTERISTICS

- SYSTEMS CONFIGURATION - WATERSHEDS & CHANNELS
- SLOPES, ROUGHNESS ASPECT
- CHANNEL CROSS SECTIONS
- RESERVOIR CONFIGURATION

GEOLOGICAL CONDITIONS

- SOILS - TEXTURE CONDUCTIVITY POROSITY SOIL MOISTURE CHARACTERISTIC CURVES
- GEOLOGY PANS - PROFILE CHARACTERISTICS
- WATER TABLES
- GROUND WATER CONDUCTIVITY SPECIFIC YIELD.

METEOROLOGICAL

- PRECIP. FORM RAIN SNOW
- CHEMICALS IN PRECIP
- WIND SPEED DIRECTION
- HUMIDITY DEWPOINT
- TEMPERATURE AIR - SOIL MAX. MIN
- RADIATION ALBEDO PAN EVAP.

INITIAL CONDITIONS

- SOIL MOISTURE
- CHANNEL FLOW
- GROUND WATER LEVELS
- RESERVOIR STORAGE
- NUTRIENTS & PESTICIDES IN SOIL & WATER
- BIOMASS & STOCK WASTES

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...Interagency Program, th... vember
..., SCS, NHQ ... January 12-15,
SCS, NHQ ... ith the CREAMS
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...inator, SCS, NHQ
...ogram Integration, SCS, NHQ
...Implementation, SCS, NHQ
...Quality Project Implementation,

...Beltsville, Maryland

...ber 2, 1982, which ... reported ...
...SWAM Committee meeting, figures ...
...processes ... the SWAM model and ...
...that Dr. ... Coursey plans to ...

...of Consumer Walt Rintall, ...
...ee and others concerned with ...
..., SWAM ... ordinator at an ...
...vance ... the proposed workshop ...
...983

Steve Baird Ste B, 73340 5220

United States Department of Agriculture

Soil Conservation Service

South Technical Service Center
P. O. Box 6567
Fort Worth, Texas
76115

Subject: TECH DEV APPL - CREAMS Workshop at the STSC, March 9-12, 1982

Date: February 1, 1982

File Code: 450

To: Paul Howard, Deputy Chief, Technology Development & Application, SCS Washington, D. C.

We had to postpone the CREAMS Workshop at the South TSC scheduled for November 16-20, 1982, until March 9-12, 1982, due to budgetary uncertainty. We are proceeding with the CREAMS Workshop in March.

The National Office TD&A staff, who were originally scheduled for the November workshop, attended the workshop held in Nashville, Tennessee, on January 12-15, 1982. If other members of your staff desire to become familiar with the CREAMS Model, they are welcome to attend the STSC Workshop in March. Attached is the information that the participants will need.

If members of your staff plan to attend, please advise.

BILLY M. JOHNSON
Director

Attachments

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Instructions to the CREAMS

Workshop Participants

Location of Workshop: Room 9, EDS Classroom, STSC, Bldg. 23, Felix and Hemphill St., Ft. Worth, Texas

Time: Beginning at 8:00 a.m., Tuesday, March 9, 1982, ending at 10:00 a.m., Friday, March 12, 1982 (see attached agenda).

Location of Motels: Each participant should make his own reservation at the motel of his choice. Two motels near the STSC are:

1. Quality Inn (Formerly Ramada Inn) Seminary Dr., exit at 4201 South Freeway, Phone No. 817-923-8281, price: Single rate is $28 + tax.
2. Days Inn
   I-35 and Felix Street, Phone No. 817-926-9211, Single rate is $25.88 + Tax.

Note: Many of you have been staying at the Howard Johnson's Motel on I-35, but it has been closed for an interchange construction. I recommend the Quality Inn. For those who are flying to Fort Worth, we have some transportation at the TSC that we can lend for travel to and from the motel; however, several State SCS cars will be available to share rides. Call John Burt at FTS 334-5282, prior to your arrival, and final local travel can be arranged.

Purpose of the Workshop: The CREAMS model will predict the delivery of runoff, sediment, pesticides and nutrients from field size areas with different agricultural management systems. The model results can be used to evaluate the effectiveness of conservation practices and management systems in reducing nonpoint source pollution.

The purpose of the workshop is to introduce the model to you and provide sufficient instructions to enable you to operate the model when you return to your duty station.

Preworkshop Instructions: As part of the instructions, you will develop model data files on a field problem that participants from states should bring. This will give you some "hands-on" experience and the instructors can provide "one-on-one" assistance.

Participants from each state should get together and select a nonirrigated cropland field for developing the necessary data to load the CREAMS model. Attached is the outline and an example of data needed. A pocket calculator will also be needed. Participants from other agencies and SCS personnel from the TSC's and the National Office will be working with the State staffs in developing the model data file.

If you have any questions, please contact John Burt.

INSTRUCTOR STAFF

John Burt	SCS
Arlin Nicks	ARS
Gene Gander	ARS
Walter Knisel	ARS
Joe DelVecchio	SCS

CREAMS WORKSHOP

SCHEDULE

Time and Date	Activity	Instructor
Tuesday, 3-9-82		
8:00 - 8:15	Welcome	T.B.A.
8:15 - 8:50	Introduction	Burt
8:50 - 9:00	Break	
9:00 - 9:20	Objective and Outline of Workshop and Workshop Problem	Burt
9:20 - 9:50	Computer Systems and Terminology	Nicks
9:50 - 10:10	Break	
10:10 - 11:00	Background and Introduction to CREAMS Model	Knisel
11:00 - 11:10	Break	
11:10 - 12:00	Hydrology Model Description and Data Input Requirements	Nicks and Gander
12:00 - 1:00	Lunch	
1:00 - 1:50	Hydrology Parameter Input Requirements	Nicks and Gander
1:50 - 2:00	Break	
2:00 - 4:00	Group Work Sessions on Application of Hydrology Model	Instructor Staff
4:00 - 5:00	Discussion of Hydrology Model Application	Nicks and Gander
Wednesday, 3-10-82		
8:00 - 8:30	Critique of Hydrology Model Application	Nicks
8:30 - 9:00	Erosion Model Description	Knisel and Gander
9:00 - 9:10	Break	
9:10 - 9:30	Erosion Model Data Input File (pass file from hydrology component)	Knisel and Gander

9:30 - 10:00	Erosion Model Parameter Inputs	Knisel and Gander
10:00 - 10:10	Break	
10:10 - 11:00	Erosion Model Parameter Inputs	Knisel and Gander
11:00 - 11:10	Break	
11:10 - 12:00	Erosion Model Parameter Inputs	Knisel and Gander
12:00 - 1:00	Lunch	
1:00 - 1:50	Group Work Sessions on Application of Erosion Model	Knisel and Gander
1:50 - 2:00	Break	
2:00 - 2:50	Work Sessions, Continued	Instructor Staff
2:50 - 3:10	Break	
3:10 - 4:00	Work Sessions, Continued	Instructor Staff
4:00 - 4:10	Break	
4:10 - 5:00	Discussion of Application of Erosion Model	Instructor Staff

Thursday, 3-11-82

8:00 - 8:30	Critique of Erosion Model	Knisel
8:30 - 9:00	Pesticide Model Description	Gander and Knisel
9:00 - 9:10	Break	
9:10 - 9:30	Pesticide Model Data Inputs (pass file from erosion model)	Gander and Knisel
9:30 - 9:50	Pesticide Model Parameter Files	Gander and Knisel
9:50 - 10:10	Break	
10:10 - 10:30	Pesticide Model Parameter Files	Gander and Knisel
10:30 - 12:00	Work Sessions	Instructor Staff
12:00 - 1:00	Lunch	

1:00 - 1:30	Nutrient Model Description	DelVecchio and Knisel
1:30 - 2:00	Nutrient Model Data Inputs (pass file from erosion model)	DelVecchio and Knisel
2:00 - 2:10	Break	
2:10 - 2:50	Nutrient Model Parameter Files	DelVecchio and Knisel
2:50 - 3:10	Break	
3:10 - 3:30	Nutrient Model Parameter Files	DelVecchio and Knisel
3:30 - 5:00	Work Sessions	Instructor Staff

Friday, 3-12-82

8:00 - 9:00	Critique of Each State's CREAMS Model Application	State Participants
9:00 - 9:10	Break	
9:10 - 10:00	Discussion of Results Overview of Workshop, and Follow-up Instructions	Instructor Staff

FIELD DATA NEEDED FOR THE CREAMS MODEL

The following list of information is needed on the field that you select to bring to the CREAMS workshop. All the state participants should work as a team and select one field.

1. Rainfall data.

   You will need to bring daily rainfall data for one year from the nearest weather station. You can bring more than one year's data, if you wish. The year selected is at your discretion.

   If you decide to bring more than one year's rainfall data, select the years with significant variation in quantity of rain.

2. Location of field.

   State _____, County _____, City _____

3. Nearest local climate station.

   State _____, County _____, City _____
   (See No. 1 above for data needed from station.)

4. Location and name of nearest state experiment station, if any:

   _____

5. What are the soils in the field?

	Name of Soil*	Approximate % of Soil in Field
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____

   *Bring soil series and Soils-5 sheets for each soil.

6. A topographic map of the field is necessary. A topographic map from a field survey is preferred, but a USGS topographic map may be sufficient on sloping land.

Example of Field Data

FIELD DATA NEEDED FOR THE CREAMS MODEL

The following list of information is needed on the field that you select to bring to the CREAMS workshop. All the state participants should work as a team and select one field.

1. Rainfall data.

   You will need to bring daily rainfall data for one year from the nearest weather station. You can bring more than one year's data, if you wish. The year selected is at your discretion.

   If you decide to bring more than one year's rainfall data, select the years with significant variation in quantity of rain.

2. Location of field.

   State Louisana, County Winnsboro, City winnsboro

3. Nearest local climate station.

   State Louisana, County Winnsboro, City winnsboro
   (See No. 1 above for data needed from station.)

4. Location and name of nearest state experiment station, if any:
   Louisana State Experiment Station, Winnsboro, La

5. What are the soils in the field?

	Name of Soil*	Approximate % of Soil in Field
1.	Gigger	45%
2.	Egypt	55%
3.		
4.		

*Bring soil series and Soils-5 sheets for each soil.

6. A topographic map of the field is necessary. A topographic map from a field survey is preferred, but a USGS topographic map may be sufficient on sloping land.

Crops and Cultural Practices

A. Single Crop _____ Crop Rotation _____

Double Crop _____ Pasture _____ Native Range _____

B. Crops	Plant Date (Grazing Start Date(s)	Harvest Date(s) (Grazing End Date(s)

8. Farming Operation on Each Field

A. Type of Crop: _____

Depth of Root Zone: _____ Inches

Date of Operation	Type of Operation	Tillage Depth

Crops and Cultural Practices

A. Single Crop ✓ Crop Rotation _____

Double Crop _____ Pasture _____ Native Range _____

B. Crops	Plant Date (Grazing Start Date(s)	Harvest Date(s) (Grazing End Date(s)
Soybeans	5/15	11/10

8. Farming Operation on Each Field

A.

Type of Crop: Soybeans
Depth of Root Zone: 10 Inches

Date of Operation	Type of Operation	Tillage Depth
11/15	Fall Disk	4"
4/15	Spring Chisel	6"
4/17	Spring Disk	5"
5/10	Disk	4"
5/15	Bedrows and Plant	4"
6/1	Cultivate	3"
6/15	Cultivate	3"
7/1	Cultivate	3"
11/10	Harvest	

Chemical Operations

A. Fertilizer

Dates of Application	Quantity by Formula (Ex: 200 #/Ac, 13-13-13)	Method of Application (Injected, Surface, etc.

B. Pesticides

Date of Application	Type (Herbicide, Insecticide, etc.)	Trade or Chemical Name	Rate of Application	Method of Application

Chemical Operations

A. Fertilizer

Dates of Application	Quantity by Formula (Ex: 200 #/Ac, 13-13-13)	Method of Application (Injected, Surface, etc.
5/15	150 lb/Ac 5-20-20	injected in Planting Process

B. Pesticides

Date of Application	Type (Herbicide, Insecticide, etc.)	Trade or Chemical Name	Rate of Application	Method of Application
5/10	Pre-emergent Herbicide	Treflan	1.0 pt/Ac	incooperate when Disking
~~6~~ 7/1	Herbicide	Dinitro	1.5 pt/Ac	Direct Spray
6/20	Insecticide	methyl Parathion	0.5 lb/Ac	Aerial Spray

10. Conservation Practices Applied

11. What are the preferred resource management systems for this field? (list only 2 systems)

A.

B.

Conservation Practices Applied

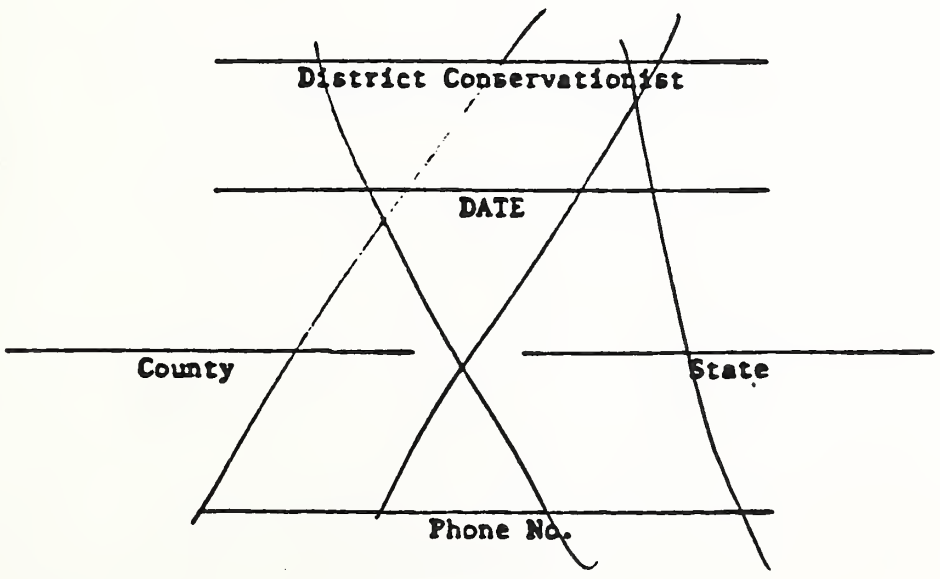
Land Leveled

11. What are the preferred resource management systems for this field? (list only 2 systems)

A. Conservation Tillage - no Fall disking, Fall Subsoiling, Cover crop, 1 Disk operation with pre-emergent, Bed rows and plant, 1 Cultivation with post emergent

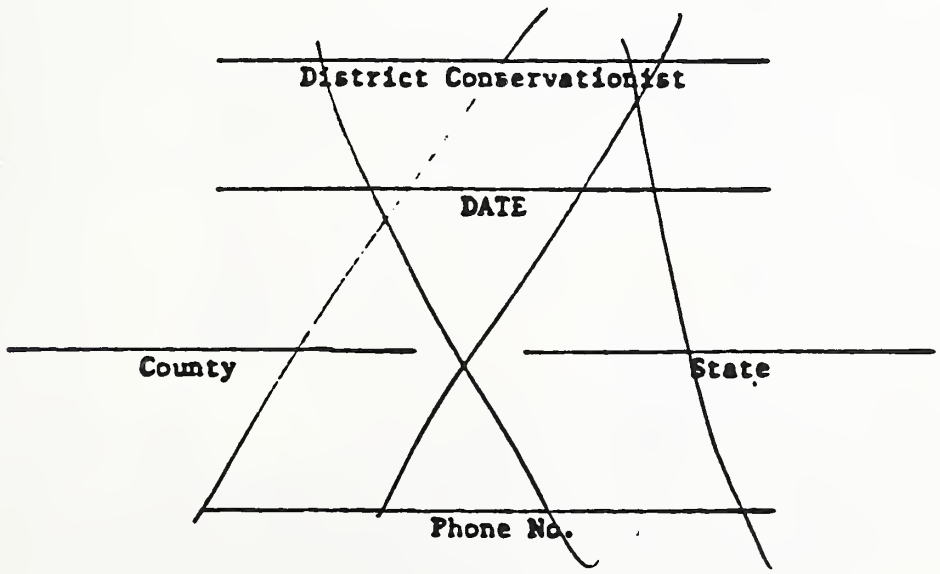
B. Same as A, but no till plant in Spring.

12. What has been the cropping history of this field? (Brief narrative is satisfactory unless there has been a radical change in land use or chemicals applied in the last 5 years.)



12: **What has been the cropping history of this field?** (Brief narrative is satisfactory unless there has been a radical change in land use or chemicals applied in the last 5 years.)

Past 3 years, the field has been in soybeans and 2 years prior, the land was in pasture



Mario Pelly

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CREAMS WORKSHOP

SCHEDULE

Time and Date	Activity	Instructor
Tuesday, 3-9-82		
8:00 - 8:15	Welcome	T.B.A.
8:15 - 8:50	Introduction	Burt
8:50 - 9:00	Break	
9:00 - 9:20	Objective and Outline of Workshop and Workshop Problem	Burt
9:20 - 9:50	Background and Introduction to CREAMS	Knisel
9:50 - 10:10	Break	
10:10 - 11:00	Computer Systems and Terminology	Nicks
11:00 - 11:10	Break	
11:10 - 12:00	Hydrology Model Description and Data Input Requirements	Nicks and Gander
12:00 - 1:00	Lunch	
1:00 - 1:50	Hydrology Parameter Input Requirements	Nicks and Gander
1:50 - 2.00	Break	
2 00 - 4 00	Group Work Sessions on Application of Hydrology Model	Instructor Staff
4:00 - 5:00	Discussion of Hydrology Model Application	Nicks and Gander
Wednesday, 3-10-82		
8:00 - 8:30	Critique of Hydrology Model Application	Nicks
8:30 - 9:00	Erosion Model Description	Knisel and Gander
9:00 - 9:10	Break	
9:10 - 10:00	Nonupdateable Erosion Model Parameter	Knisel and Gander

10:00 - 10:10	Break	
10:10 - 10 30	Nonupdateable Erosion Model Parameters	Knisel and Gander
10 30 - 11:45	Work Session	Instructor Staff
11:45 - 12 45	Lunch	
12 45 - 1:30	Updateable Erosion Model Parameters	Knisel and Gander
1:30 - 1:40	Break	
1 40 - 2 20	Updateable Erosion Model Parameters	Instructor Staff
2:20 - 2:30	Break	
2:30 - 5:00	Work Sessions	Instructor Staff

Thursday 3-11-82

8:00 - 8.30	Critique of Erosion Model	Knisel
8:30 - 9:00	Pesticide Model Description	Gander and Knisel
9:00 - 9:10	Break	
9:10 - 9:30	Pesticide Model Data Inputs (pass file from erosion model)	Gander and Knisel
9:30 - 9:50	Pesticide Model Parameter Files	Gander and Knisel
9:50 - 10:10	Break	
10:10 - 10:30	Pesticide Model Parameter Files	Gander and Knisel
10:30 - 12:00	Work Sessions	Instructor Staff
12:00 - 1:00	Lunch	

1:00 - 1:30	Nutrient Model Description	DelVecchio and Knisel
1:30 - 2:00	Nutrient Model Data Inputs (pass file from erosion model)	DelVecchio and Knisel
2:00 - 2:10	Break	
2:10 - 2:50	Nutrient Model Parameter Files	DelVecchio and Knisel
2:50 - 3:10	Break	
3:10 - 3:30	Nutrient Model Parameter Files	DelVecchio and Knisel
3:30 - 5:00	Work Sessions	Instructor Staff

Friday, 3-12-82

8:00 - 9:00	Critique of Each State's CREAMS Model Application	State Participants
9:00 - 9:10	Break	
9:10 - 10:00	Discussion of Results Overview of Workshop, and Follow-up Instructions	Instructor Staff

02.20.18 JOB B271 $HASP373 SCS1JPB STARTED - INIT 2 - CLASS C - SYS M303
02.20.22 JOB B271 **** B2070 RJ119 SCS1JPB COST----1 1.25 ****
02.20.22 JOB B271 ASP395 SCS1JPB

```
02.20.18 JOB 8271   $HASP373 SCS1JPB  STARTED - INIT  2 - CLASS C - SYS M303
02.20.22 JOB 8271   **** 82070                RJ114  SCS1JPB   COST---$       1.25 ****
02.20.22 JOB 8271   ASP395 SCS1JPB  ENDED

------ JES2 JOB STATISTICS ------

 11 MAR 82 JOB EXECUTION DATE

       147 CARDS READ

       653 SYSOUT PRINT RECORDS

        91 SYSOUT PUNCH RECORDS

      0.06 MINUTES EXECUTION TIME
```

```
***LOGONID  SCS157    $ACF1770 LOGONID SUCCESSFULLY SCANNED
***PASSWORD  $ACF1770 PASSWORD(S) SUCCESSFULLY SCANNED
***           PRINT RMT114
***           PUNCH RMT114
 2  //STEP EXEC SCSCREME,COPYS=1
 3  XXSCSCREME PROC COPYS=1                                          00000430
***                                                                 00000440
***  PROC FOR CREME                                                 00000450
*** PROC CREATED FOR CREAMS,EROSION MODEL RUN                       00000460
***       USDA-SCS-STSC IRIS ADP STAFF                              00000470
***       FT. WORTH,TEXAS 9-17-1981                                 00000480
***                                                                 00000490
***                                                                 00000500
***    FOR EXAMPLE:                                                 00000510
***         //STEP EXEC SCSCREME                                    00000520
***         //CREME.INPUT1 DD *                                     00000530
***           ***********************************************       00000540
***           *   HYDROLOGY PASS FILE(CREMH-FT04F001)     *       00000550
***           ***********************************************       00000560
***         /*                                                      00000570
***         //CREME.INPUT2 DD *                                     00000580
***           ****************************                          00000590
***           *   EROSION PARAMETERS     *                          00000600
***           ****************************                          00000610
***         /*                                                      00000620
***         //                                                      00000630
***                                                                 00000640
 4  XXCREME EXEC PGM=CREME,REGION=300K                               00000650
 5  XXSTEPLIB DD UNIT=SYSDA,DSN=SCS157.CRER5LIB,DISP=SHR             00000660
 6  XXFT01F001 DD DDNAME=INPUT1                                      00000670
 7  XXFT02F001 DD DDNAME=INPUT2                                      00000680
 8  XXFT04F001 DD SYSOUT=B                                           00000690
 9  XXFT06F001 DD DUMMY                                              00000700
10  XXFT05F001 DD DUMMY                                              00000710
11  XXFT03F001 DD SYSOUT=A,COPIES=&COPYS,                            00000720
    XX            DCB=BLKSIZE=19047                                  00000730
12  //CREME.INPUT1 DD *
13  //CREME.INPUT2 DD *
    //

STMT NO. MESSAGE
```

```
   11     IEF653I SUBSTITUTION JCL - SYSOUT=A,COPIES=1,
IEF236I ALLOC. FOR SCS1JPB CREME STEP
IEF237I 120 /     ATED TO STEPLIB
IEF237I 135 /     ATED TO SYS00372
IEF237I JES2 A    CATED TO FT01F001
IEF237I JES2 ALLOCATED TO FT02F001
IEF237I JES2 ALLOCATED TO FT04F001
IEF237I DMY  ALLOCATED TO FT06F001
IEF237I DMY  ALLOCATED TO FT05F001
IEF237I JES2 ALLOCATED TO FT03F001
IEF142I SCS1JPB CREME STEP - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SCS157.CRER5LIB                              KEPT
IEF285I   VOL SER NOS= STOR43.
IEF285I   SYSCTLG.VSYSM02                              KEPT
IEF285I   VOL SER NOS= SYSM02.
IEF285I   JES2.JOB08271.SI0101                         SYSIN
IEF285I   JES2.JOB08271.SI0102                         SYSIN
IEF285I   JES2.JOB08271.SO0103                         SYSOUT
IEF285I   JES2.JOB08271.SO0104                         SYSOUT
IEF373I STEP /CREME   / START 82070.0220
IEF374I STEP /CREME   / STOP  82070.0220 CPU    0MIN 01.90SEC SRB    0MIN 00.02SEC VIRT   184K SYS   232K
IEF375I  JOB /SCS1JPB / START 82070.0220
IEF376I  JOB /SCS1JPB / STOP  82070.0220 CPU    0MIN 01.90SEC SRB    0MIN 00.02SEC
****** $      1.25  APPROXIMATE JOB COST -- RATES AS OF OCT 1, 1979              **3033**
JOB LOG NUMBER -- 02194903 82070
```

BAKER FIELD 4 COUNTY TX.
WHEAT WITHOUT [illegible]ACES
CONVENTIONAL TILLAGE

INITIAL CONSTANTS

STARTING DATE FOR THIS RUN	79000	JULIAN DATE
WT. DENSITY SOIL (IN PLACE)	96.0	LBSF/FT**3
WT. WATER DENSITY	62.4	LBSF/FT**3
MASS WATER DENSITY	1.94	SLUGS/FT**3
ACC. DUE TO GRAVITY	32.2	FT/SEC**2
KINEMATIC VISCOSITY	0.121E-04	FT**2/SEC
MANNING N BARE SOIL (OVER)	0.010	
MANNING N BARE SOIL (CHAN)	0.030	
CHANNEL ERODIBILITY FACTOR	0.135	
(LBS/FT**2 SEC)/(LBS/FT**2)**1.05		
YALIN CONSTANT (ALL PART.)	0.635	
MOMENTUM COEFF. FOR NONUNIFORM VELOCITY IN CROSS SECTION	1.56	(NO UNITS)

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ORIGINAL SOIL MASS

TYPE	FRACTION	SPECIFIC SURFACE
		(M**2/G OF SOIL)
CLAY	0.450	20.000
SILT	0.450	4.000
SAND	0.100	0.050
		(M**2/G OF ORGANIC CARBON)
ORGANIC MATTER	0.020	1000.000

(ORGANIC CARBON = ORGANIC MATTER/1.73)

INDEX OF SPECIFIC SURFACE 22.15 M**2/G OF TOTAL SOIL

PARTICLE SPECIFICATIONS

TYPE NO.	DIA. MM	EQSAND DIA. MM	FALL VEL. FT/SEC	SPGRAV. GM/CM**3	FRAC. IN DETACH. SED.
1	0.002	0.002	0.102E-04	2.60	0.09
2	0.010	0.010	0.263E-03	2.65	0.06
3	0.070	0.047	0.678E-02	1.80	0.56
4	0.900	0.465	0.219E+00	1.60	0.27
5	0.200	0.201	0.759E-01	2.65	0.02

PARTICLE COMPOSITION

TYPE NO.	PRIMARY PARTICLE FRACTIONS CLAY	SILT	SAND	ORGANIC MATTER
1	1.000	0.0	0.0	0.044
2	0.0	1.000	0.0	0.0
3	0.500	0.500	0.0	0.022

4	0.300	0.416	0.284	0.013
5	0.0	0.0	1.000	0.0

OVERLAND INPUTS

OVERLAND AREA	35.1240	ACRES
SLOPE LENGTH	1100.00	FT
MAXIMUM ELEVATION	27.50	FT
AVERAGE SLOPE	0.0250	
SLOPE OF UPPER END	0.0100	
SLOPE OF MID SECTION	0.0350	
SLOPE OF LOWER END	0.0220	

THE SLOPE IS A CONVEX CONCAVE

LOCATION OF UNIFORM SECTION
DISTANCE,ELEVATION 493.0,17.7
DISTANCE,ELEVATION 787.0, 7.7
DISTANCE MEASURED FROM THE UPPER END
ELEVATION MEASURED ABOVE LOWEST POINT

CHANNEL INPUTS

CHANNEL LENGTH	912.00	FT
DRAINAGE AREA UPPER END	3.2000	ACRES
EFFCT. LENGTH UPPER END	91.42	FT
DRAINAGE AREA LOWER END	35.1240	ACRES
EFFCT. LENGTH LOWER END	1003.42	FT
MANNING N FOR BARE SOIL	0.030	
SOIL ERODIBILITY FACTOR	0.135	

A TRIANGULAR SHAPED CHANNEL

ENERGY GRADELINE
USES THE ENERGY GRADELINE CURVES

UNIFORM FLOW CONTROL
TRIANGULAR CONTROL CHANNEL

BOTTOM SLOPE = 0.0100
SIDE SLOPE = 20.00
MANNINGS N = 0.060

11 STORMS PRODUCED 1.99 IN. OF RAINFALL
1 STORMS PRODUCED 0.04 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	812.	0.1592	0.0026	2552.
2	202.	0.0397	0.0006	636.
3	243.	0.0477	0.0008	765.
4	2.	0.0003	0.0000	5.
5	2.	0.0005	0.0000	7.
TOTAL	1262.	0.2474	0.0040	3965.

AVERAGE SOIL LOSS FOR AREA 0.02 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.740
SILT	0.257
SAND	0.002
ORGANIC MATTER	0.033

INDEX OF SPECIFIC SURFACE 34.36 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.551

MONTHLY SUMMARY FOR FEB, 1979

11 STORMS PRODUCED 1.97 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR MAR, 1979

10 STORMS PRODUCED 4.32 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR APR, 1979

10 STORMS PRODUCED 1.38 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR MAY, 1979

10 STORMS PRODUCED 9.68 IN. OF RAINFALL
7 STORMS PRODUCED 2.65 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	14296.	0.0423	0.0007	678.
2	7433.	0.0220	0.0004	353.
3	24045.	0.0712	0.0011	1140.
4	2085.	0.0062	0.0001	99.
5	1565.	0.0046	0.0001	74.
TOTAL	49423.	0.1463	0.0023	2344.

AVERAGE SOIL LOSS FOR AREA 0.70 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.545
SILT	0.411
SAND	0.044
ORGANIC MATTER	0.024

INDEX OF SPECIFIC SURFACE 26.26 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.185

MONTHLY SUMMARY FOR JUN, 1979

6 STORMS PRODUCED 4.31 IN. OF RAINFALL
3 STORMS PRODUCED 1.33 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	9069.	0.0535	0.0009	857.
2	4515.	0.0266	0.0004	427.
3	6904.	0.0407	0.0007	653.
4	357.	0.0021	0.0000	34.
5	512.	0.0030	0.0000	48.
TOTAL	21357.	0.1259	0.0020	2018.

AVERAGE SOIL LOSS FOR AREA 0.30 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.591
SILT	0.380
SAND	0.029
ORGANIC MATTER	0.026

INDEX OF SPECIFIC SURFACE 28.20 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.273

MONTHLY SUMMARY FOR JUL. 1979

8 STORMS PRODUCED 5.01 IN. OF RAINFALL
2 STORMS PRODUCED 2.51 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	13616.	0.0425	0.0007	682.
2	8102.	0.0253	0.0004	406.
3	22243.	0.0695	0.0011	1114.
4	1463.	0.0046	0.0001	73.
5	2438.	0.0076	0.0001	122.
TOTAL	47862.	0.1496	0.0024	2397.

AVERAGE SOIL LOSS FOR AREA 0.68 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.526

SILT	0.414
SAND	0.060
ORGANIC MATTER	0.023

INDEX OF SPECIFIC SURFACE 25.42 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.147

MONTHLY SUMMARY FOR AUG. 1979

7 STORMS PRODUCED 4.58 IN. OF RAINFALL
3 STORMS PRODUCED 1.61 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	10014.	0.0488	0.0008	782.
2	4841.	0.0236	0.0004	378.
3	13132.	0.0640	0.0010	1025.
4	819.	0.0040	0.0001	64.
5	984.	0.0048	0.0001	77.
TOTAL	29789.	0.1451	0.0023	2326.

AVERAGE SOIL LOSS FOR AREA 0.42 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.565
SILT	0.394
SAND	0.041
ORGANIC MATTER	0.025

INDEX OF SPECIFIC SURFACE 27.07 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.222

3 STORMS PRODUCED 2.51 IN. OF RAINFALL
2 STORMS PRODUCED 0.76 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	4303.	0.0444	0.0007	712.
2	1650.	0.0170	0.0003	273.
3	5788.	0.0597	0.0010	957.
4	171.	0.0018	0.0000	28.
5	184.	0.0019	0.0000	30.
TOTAL	12096.	0.1248	0.0020	2000.

AVERAGE SOIL LOSS FOR AREA 0.17 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.599
SILT	0.382
SAND	0.019
ORGANIC MATTER	0.027

INDEX OF SPECIFIC SURFACE 28.56 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.289

MONTHLY SUMMARY FOR OCT. 1979

3 STORMS PRODUCED 1.94 IN. OF RAINFALL
1 STORMS PRODUCED 0.01 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	203.	0.1589	0.0025	2546.
2	5.	0.0043	0.0001	69.
3	2.	0.0015	0.0000	24.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	210.	0.1646	0.0026	2638.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.969
SILT	0.031
SAND	0.000
ORGANIC MATTER	0.043

INDEX OF SPECIFIC SURFACE 43.60 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.968

MONTHLY SUMMARY FOR NOV. 1979

5 STORMS PRODUCED 0.33 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR DEC. 1979

6 STORMS PRODUCED 3.97 IN. OF RAINFALL
3 STORMS PRODUCED 0.48 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	4374.	0.0715	0.0011	1145.
2	1065.	0.0174	0.0003	279.
3	1290.	0.0211	0.0003	338.
4	12.	0.0002	0.0000	3.
5	15.	0.0002	0.0000	4.
TOTAL	6755.	0.1104	0.0018	1769.

AVERAGE SOIL LOSS FOR AREA 0.10 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES

TYPE	FRACTION
CLAY	0.743
SILT	0.254
SAND	0.003
ORGANIC MATTER	0.033

INDEX OF SPECIFIC SURFACE 34.48 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.556

ANNUAL SUMMARY FOR 1979

90 STORMS PRODUCED 41.99 IN. OF RAINFALL
22 STORMS PRODUCED 9.39 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	56687.	0.0473	0.0008	759.
2	27814.	0.0232	0.0004	372.
3	73648.	0.0615	0.0010	986.
4	4909.	0.0041	0.0001	66.
5	5699.	0.0048	0.0001	76.
TOTAL	168755.	0.1410	0.0023	2259.

AVERAGE SOIL LOSS FOR AREA 2.40 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.563
SILT	0.395
SAND	0.042
ORGANIC MATTER	0.025

INDEX OF SPECIFIC SURFACE 26.99 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.218

1 C R E A M S NONPOINT SOURCE POLLUTION MODEL (EROSION/SEDIMENT YIELD)

VERSION 1.5 JUL 22, 1981 TIFTON GA

BAKER FIELD 4 BELL COUNTY TX.
WHEAT WITHOUT TERRACES
CONVENTIONAL TILLAGE

STORM SUMMARY

90 STORMS PRODUCED 41.99 IN. OF RAINFALL
22 STORMS PRODUCED 9.39 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF
VALUES FOR ALL STORMS

PAR. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	56687.	0.0473	0.0008	759.
2	27814.	0.0232	0.0004	372.
3	73648.	0.0615	0.0010	986.
4	4909.	0.0041	0.0001	66.
5	5699.	0.0048	0.0001	76.
TOTAL	168755.	0.1410	0.0023	2259.

TOTAL SOIL LOSS FOR AREA 2.40 TONS/ACRE
(AREA = 35.1240 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.563
SILT	0.395
SAND	0.042
ORGANIC MATTER	0.025

INDEX OF SPECIFIC SURFACE 26.99 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.218

SOIL CONSERVATION SERVICE

CREAMS MODEL USER'S GUIDE

SOIL CONSERVATION SERVICE

CREAMS MODEL USER'S GUIDE

CHAPTER 1 - INTRODUCTION

The purpose of this guide is to provide the SCS user with the appropriate information to use the computer model called "CREAMS," an acronym for a field scale model for Chemicals, Runoff, and Erosion from Agricultural Management Systems. This guide describes the required parameters, format for the parameters, and computer loading instructions to make the model function, as well as an assessment of the model output. For a description of how the model functions, the reader is referred to the CREAMS Manual, Conservation Research Report No. 26.[1/]

This user's guide is divided into five chapters and eight appendices, which discuss in detail the operating requirements for each component. The appropriate tables are included in the appendices.

1.1 Origin of the CREAMS Model

In response to a need expressed by state and federal agencies, the Agricultural Research Service (ARS), formed a task force of leading scientists to develop a method of predicting the water quality benefits of conservation practices. The Universal Soil Loss Equation (USLE) was not developed for this function and could not fulfill the urgent need. The CREAMS model was the product of the task force. The three volume report describes and documents the model and includes a user's manual.

1.2 Capabilities of the CREAMS Model.

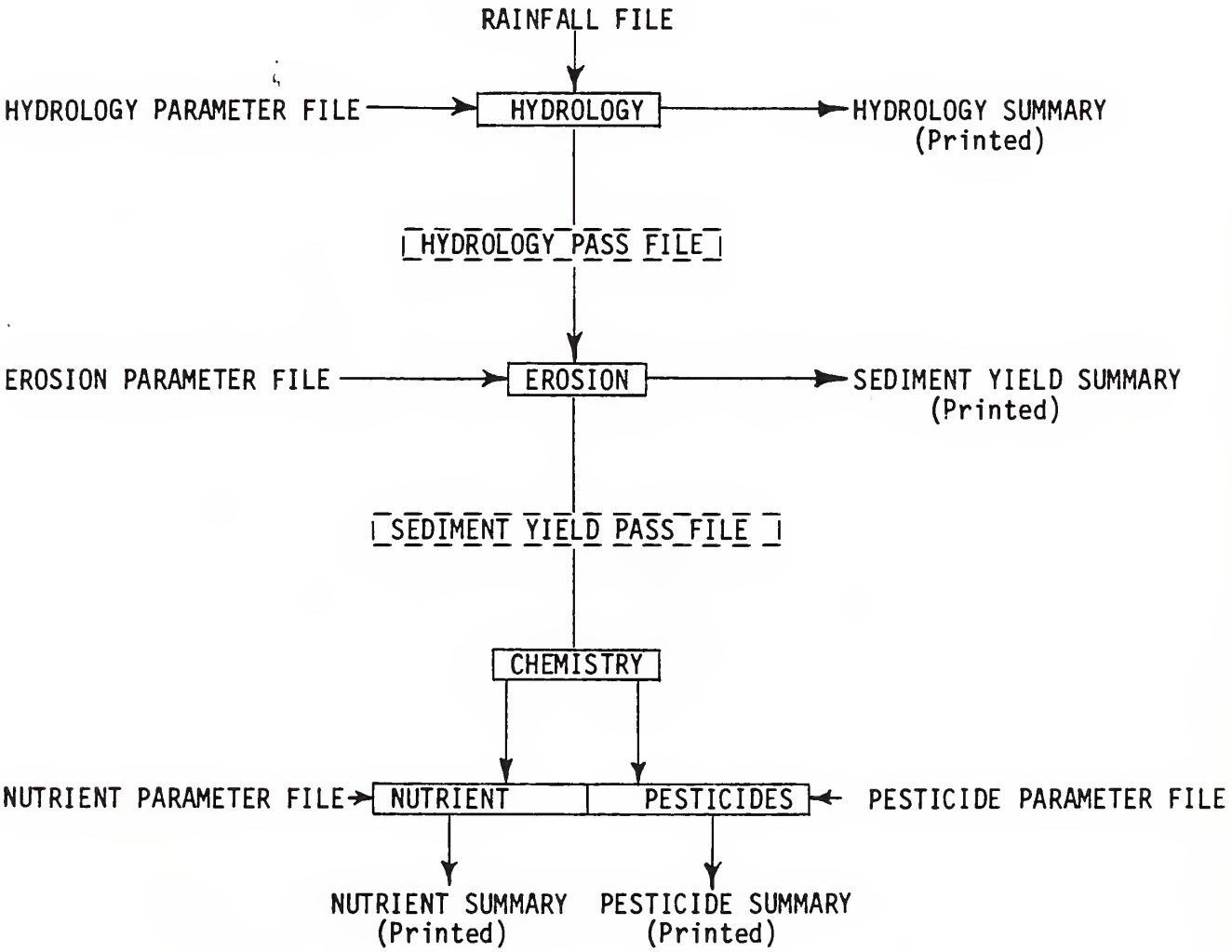
The CREAMS model is computer operated and located on the Washington Computer Center; therefore, it is accessible with the Harris terminals located in the state offices.

The model will predict the delivery of runoff, sediment, pesticides, and nutrients from field-size areas. A field is defined as a management unit having (1) a single land use, (2) relatively homogenous soils, (3) spatially uniform rainfall, and (4) single management systems, such as terraces. Normally, fields will be less than 100 acres.

1/ Knisel, W. G., (Ed), "CREAMS: A Field Scale Model for Chemicals, Runoff, and Erosion from Agricultural Management Systems: Conservation Research Report No. 26," USDA-SEA, June 1980, pp 643.

The model functions on a watershed basis within a field. Land formed fields may constitute the entire watershed, while some fields may have several watersheds. The user must decide on the predominant watershed to use within the field. All the model components will operate on the same watershed.

The model is divided into three components--hydrology, erosion, and chemicals. Each of the components operate independently after the component is loaded with the appropriate parameter set and pass files from other components where needed. A simplified schematic is as follows:



CHAPTER 2 - COMPUTER TERMINOLOGY AND OPERATIONS GUIDE

This chapter provides the necessary information on computer terminology, Harris terminal procedure, and Job Control Language needed to operate the model on the Washington Computer Center equipment.

2.1 Input Files

There are two types of input files required to run each of the three components of CREAMS (Hydrology, Erosion-Sediment, and Chemical). These files are, first, data files which contain daily or breakpoint rainfall only. When first entered into the Hydrology program, the data files contain rainfall only. Thereafter, data files (pass files) of daily or storm rainfall, runoff volume, peak runoff rate, evap-transpiration, soil moisture, temperature, etc., are input into the Erosion-Sediment model program component and the Chemical model component. Those latter pass files are constructed by the Hydrology and Erosion-Sediment programs and require little attention by the user, except to note their existence and identify them when returned to the Harris terminal as punched output to tape. For example, the Hydrology pass file will be needed as input to the Erosion-Sediment model, and the Erosion pass file from the Erosion-Sediment model will be used as input data to the Chemical model. These files, when returned to the Harris terminal location, must be identified for further use by the user with the appropriate parameter files required by the following programs runs. More explanation will be given in later sections of this chapter.

The second type of input file is the parameter file. This file contains the values required by the program components to set the coefficients, constants and parameters in the algorithms and equations of the physical processes in the models. Such values as field area, runoff curve number, manning's n, slope, etc., are entered by these files. Four parameter files are required if each component of the model is to be used; i.e., Hydrology, Erosion, Pesticides, and Nutrients.

2.2 Operation and File Management

The operation of the CREAMS model is patterned as closely as possible to procedures and equipment now being used by SCS ADP personnel. The model will operate in Remote Job Entry (RJE) from Harris terminal to the Washington Computer Center (WCC). Program control or Job Control Language (JCL) statements, data files, and parameter files will be transmitted from the Harris terminal now in use in State Offices and TSC's throughout SCS. The model is accessible to any SCS location with a Remote job Entry terminal (RJE).

Output files will normally be received at the originating terminal in the form of printed summaries and punched output pass files. The punches pass file will be used as input data for the next model component. The punched output pass file will normally be stored on magnetic tape at the terminal site. Directions should be given to the terminal operator by the user to adequately identify this file for later recall and use in other appropriate, subsequent runs. Output can be routed from WCC to other terminals, if desired. Figure 2.1 illustrates a schematic representation of the operation the model from a Harris terminal location to WCC and return with the appropriate input files required and the disposition of output from the program run.

2.3 Data and Parameter Formats

Formats for coding and entering both types of files have been standardized and made uniform as much as possible in all of the model components. The formats have been reduced to four types, each of which contain 80 columns or characters per line. The following lists each type of format in computer terminology and an explanation is given for each one.

Format 1 (F01) :

10X,10F5.2,20X

Where 10X represents a field of 10 columns or characters which are not read but are used to identify the line of data to the user for reference, such as rain gage number and year. 10F5.0 represents 10 fields containing 5 characters each, such as daily rainfall amount. The decimal point may occur in any column; 20X represents 20 columns to further identify the data line, such as a card number. This format is used only for entering daily rainfall files. Table 2.1 lists the Harris terminal Format/41 control record definition form information to be used by the terminal operator for setting up this format on the state terminal. Refer your operator to this form if the format is cataloged on your system.

Format 2. (F02) :

20A4

Where 20A4 represents 20 fields of 4 characters each. These data are alpha/numeric (letters or numbers). This format is used to enter Title card information. Table 2.2 lists the Harris terminal format/41 control record definition for this format.

Format 3. (F03) :

10I8 or 10F8.0

Where 10I8 represents 10 fields of 8 columns each. The I represents Integer data, such as control flags used for program execution controls. Card 4 in all model component programs used this format. The 10F8.0 format is the same as above, except the data in the 8 column field is decimal. Most all other parameter cards use this format. Table 2.3 lists Harris terminal format/41 control record definition information for this format.

Format 4. (F04) :

4A4

Where 4A4 represents alpha/numeric information. This format is used to enter pesticide names in the pesticide component of the chemical model Table 2.4 lists the Harris terminal format/41 record definition information for this format.

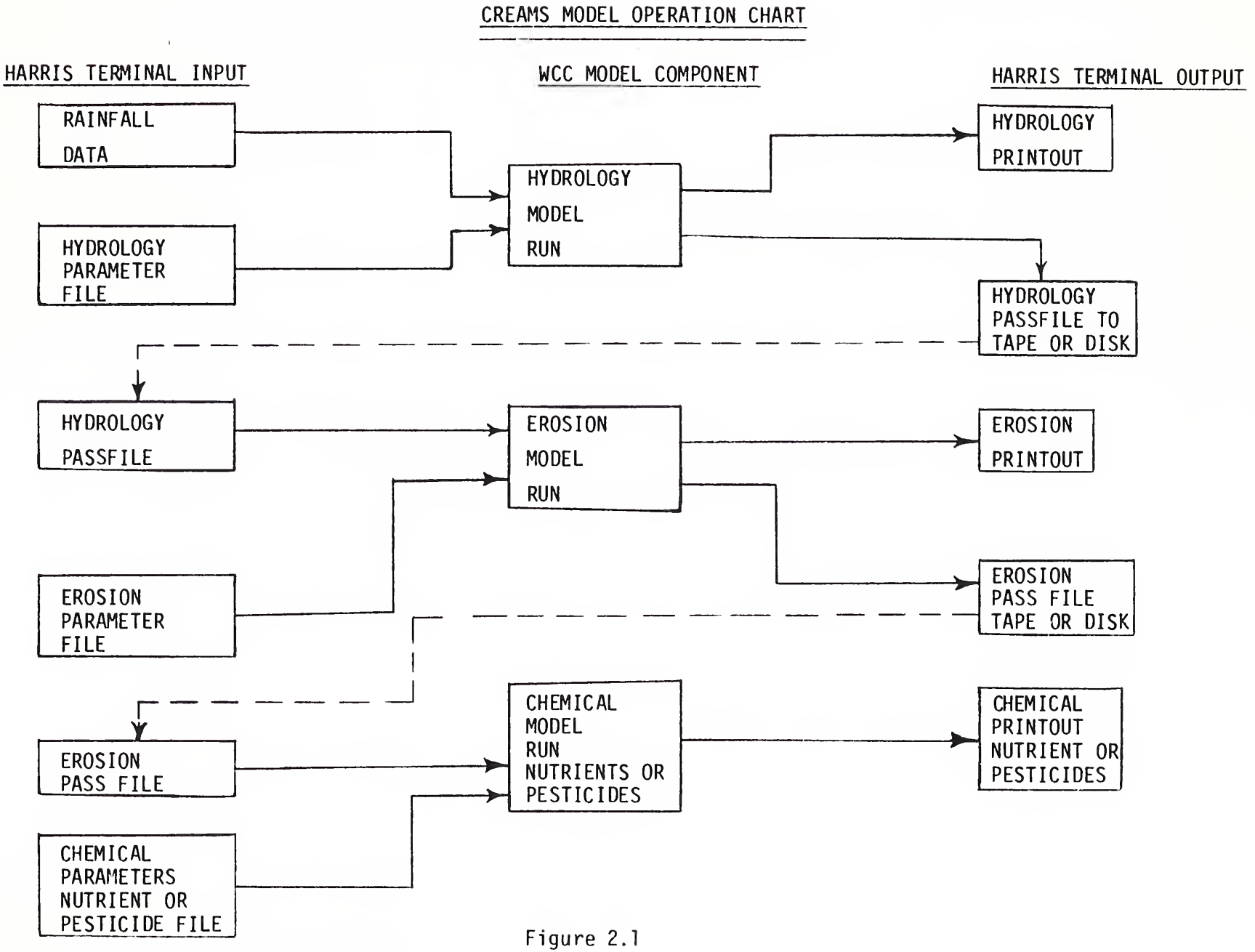

CREAMS MODEL OPERATION CHART
HARRIS TERMINAL INPUT
WCC MODEL COMPONENT
HARRIS TERMINAL OUTPUT
RAINFALL DATA
HYDROLOGY PARAMETER FILE
HYDROLOGY MODEL RUN
HYDROLOGY PRINTOUT
HYDROLOGY PASSFILE TO TAPE OR DISK
HYDROLOGY PASSFILE
EROSION MODEL RUN
EROSION PRINTOUT
EROSION PARAMETER FILE
EROSION PASS FILE TAPE OR DISK
EROSION PASS FILE
CHEMICAL MODEL RUN NUTRIENTS OR PESTICIDES
CHEMICAL PRINTOUT NUTRIENT OR PESTICIDES
CHEMICAL PARAMETERS NUTRIENT OR PESTICIDE FILE

Figure 2.1

2.4 Job Control Language (JCL) Examples

```
                ************************************************

                 NOT AVAILABLE AT FT. COLLINS COMPUTER CENTER
                ************************************************

                     JOB STREAM FOR WCC HYDROLOGY MODEL RUN

//SCSccmmm JOB (accountinfo,RJrrr),'st-name',TIME=(0,20),CLASS=C,
// PRTY=03,MSGLEVEL=(1,1)
//*LOGONID aaaa
//*PASSWORD aaaa
/*ROUTE  PRINT RMTrrr
/*ROUTE  PUNCH RMTrrr
//STEP  EXEC SCSCREMH,COPYS=1
//CREMH.INPUT1 DD *


          ********************
          *  RAINFALL DATA   *
          ********************

/*
//CREMH.INPUT2 DD *


          ***************************
          *  HYDROLOGY PARAMETERS   *
          ***************************

/*
//
```

TIME/CLASS & PRTY can change
nn = State numeric FIPS code
name = Identifying information
cc = User ID number
mmm = Optional identifier for uniqueness
rrr = Remote ID number
aaaa = Security information

Note IF multiple copies of the output are desired, change the JCL symbolic parameter COPIES=2, 3, 4, or 5, to receive 2, 3, 4, or 5 copies of output on the Harris RJE printer. The internal default is 1.

```
                    ************************************************
                      NOT AVAILABLE AT FT. COLLINS COMPUTER CENTER
                    ************************************************

                        JOB STREAM FOR WCC EROSION MODEL RUN

//SCSccmmm JOB (accountinfo,RJrrr),'st-name',TIME=(0,20),CLASS=C,
// PRTY=03,MSGLEVEL=(1,1)
//*LOGONID aaaa
//*PASSWORD aaaa
/*ROUTE  PRINT RMTrrr
/*ROUTE  PUNCH RMTrrr
//STEP  EXEC SCSCREME,COPYS=1
//CREME.INPUT1 DD *


          ***************************************
          *  HYDROLOGY PASS FILE(CREMH-FT04F00)  *
          ***************************************

/*
//CREME.INPUT2 DD *

          ************************
          *  EROSION PARAMETERS  *
          ************************

/*
//

          TIME/CLASS & PRTY can change
          nn = State numeric FIPS code
          accountinfor = Account number
          name = Identifying information
          cc =  User ID number
          mmm = Optional identifier for uniqueness
          rrr = Remote ID number
          aaaa = Security information


Note      IF multiple copies of the output are desired, change the
          JCL symbolic parameter COPIES=2, 3, 4, or 5, to receive 2, 3,
          4, or 5 copies of output on the Harris RJE printer.  The internal
          default is 1.
```

```
**********************************************

  NOT AVAILABLE AT FT. COLLINS COMPUTER CENTER
**********************************************

     JOB STREAM FOR WCC CHEMICAL MODEL RUN

//SCSccmmm JOB (accountinfo,RJrrr),'st-name',TIME=(0,20),CLASS=C,
// PRTY=03,MSGLEVEL=(1,1)
//*LOGONID aaaa
//*PASSWORD aaaa
/*ROUTE  PRINT RMTrrr
/*ROUTE  PUNCH RMTrrr
//STEP  EXEC SCSCREMC,COPYS=1
//CREMC.INPUT1 DD *

        ************************************
        *  EROSION PASS FILE(CREME-FT04F001) *
        ************************************

/*
//CREMC.INPUT2 DD *

        *************************
        *  CHEMICAL PARAMETERS  *
        *************************

/*
//

        TIME/CLASS & PRTY can change
        nn = State numeric FIPS code
        accountinfo = Account number
        name = Identifying information
        cc = User ID number
        mmm = Optional identifier for uniqueness
        rrr =  Remote ID number
        aaaa =  Security information

Note    IF multiple copies of the output are desired, change the
        JCL symbolic parameter COPIES=2, 3, 4, or 5 to receive
        2, 3, 4, or 5 copies of output on the Harris RJE printer. The
        internal default is 1.
```

```
                ************************************************

                  NOT AVAILABLE AT FT. COLLINS COMPUTER CENTER
                ************************************************

            JOB STREAM FOR WCC, ALL CREAMS COMPONENTS RUN TOGETHER

//SCSccmmm JOB (accountinfo,RJrrr),'st-name',TIME=(0,20),CLASS=C,
// PRTY=03,MSGLEVEL=(1,1)
//*LOGONID aaaa
//*PASSWORD aaaa
/*ROUTE  PRINT RMTrrr
/*ROUTE  PUNCH RMTrrr
//STEP  EXEC SCSCREAM,COPYS=1
//CREMH.INPUT1 DD *

        ********************
        *  RAINFALL DATA   *
        ********************

/*
//CREMH.INPUT2 DD *
        ***************************
        *  HYDROLOGY PARAMETERS   *
        ***************************

/*
//CREME.INPUT3 DD *
        ************************
        *  EROSION PARAMETERS   *
        ************************

/*
//CREMC.INPUT4 DD *
        ************************
        *  CHEMICAL PARAMETERS   *
        ************************

/*
//
```

TIME/CLASS & PRTY can change
nn = State numeric FIPS code
accountinfor - Account number
name = Identifying information
cc = User ID number
mmm = Optional identifier for uniqueness
rrr = Remote ID number
aaaa = Security information

Note IF multiple copies of the output are desired, change the JCL symbolic parameter COPIES=2, 3, 4, or 5, to receive 2, 3, 4, or 5 copies of output on the Harris RJE printer. The internal default is 1.

HARRIS
COMMUNICATION AND INFORMATION PROCESSING

These are available for the National Format file.

FORMAT/41 CONTROL RECORD DEFINITION FORM

CONTROL RECORD FILE NAME
(_____)

JOB NAME CREAMS

Control Record # 425

Format Purpose RAINFALL FILE

FIELD NAME	F#	OPC	ATTR	MOD	BEG	END	COMMENTS
	01	AF		10			
	02	AF	R	5			
	03	AF	R	5			
	04	AF	R	5			
	05	AF	R	5			
	06	AF	R	5			
	07	AF	R	5			
	08	AF	R	5			
	09	AF	R	5			
	10	AF	R	5			
	11	AF	R	5			
	12	BF		18			
	13	NF	ZE	2			
	14	EN		425			
	15						
	16						
	17						
	18						
	19						
	20						
	21						
Reverse Pointer	22	REV					
Next Form	23	NXT		425			
Screen Prompts	24						

C	R	E	A	M	S	-	-	R	A	I	N	F	A	L	L											

Table 2.1

HARRIS
COMMUNICATION AND INFORMATION PROCESSING

FORMAT/41 CONTROL RECORD DEFINITION FORM

CONTROL RECORD FILE NAME
(_____)

JOB NAME CREAMS

Control Record # 426

Format Purpose TITLE

FIELD NAME	F#	OPC	ATTR	MOD	BEG	END	COMMENTS
	01	AF		80			
	02	EN		426			
	03						
	04						
	05						
	06						
	07						
	08						
	09						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
Reverse Pointer	22	REV					
Next Form	23	NXT		427			
Screen Prompts	24						

C	R	E	A	M	S	-	-	T	I	T	L	E														

Table 2.2

HARRIS
COMMUNICATION AND INFORMATION PROCESSING

FORMAT/41 CONTROL RECORD DEFINITION FORM

CONTROL RECORD FILE NAME
(_____)

JOB NAME CREAMS

Control Record # 427

Format Purpose 8-COL DATA

FIELD NAME	F#	OPC	ATTR	MOD	BEG	END	COMMENTS
	01	AF	R	8			
	02	AF	R	8			
	03	AF	R	8			
	04	AF	R	8			
	05	AF	R	8			
	06	AF	R	8			
	07	AF	R	8			
	08	AF	R	8			
	09	AF	R	8			
	10	AF	R	8			
	11	EN		427			
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
Reverse Pointer	22	REV					
Next Form	23	NXT		427			
Screen Prompts	24						

C	R	E	A	M	S

Table 2.3

HARRIS
COMMUNICATION AND INFORMATION PROCESSING

FORMAT/41 CONTROL RECORD DEFINITION FORM

CONTROL RECORD FILE NAME

(_____)

JOB NAME CREAMS

Control Record # 428

Format Purpose PESTICIDE NAME

FIELD NAME	F#	OPC	ATTR	MOD	BEG	END	COMMENTS
	01	AF		16			
	02	BF		64			
	03	EN		427			
	04						
	05						
	06						
	07						
	08						
	09						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
Reverse Pointer	22	REV					
Next Form	23	NXT		428			
Screen Prompts	24						

C	R	E	A	M	S	-	-	P	E	S	T	I	C	I	D	E		N	A	M	E					

Table 2.4

FORMAT 41 OPCODE/MODIFIER DESCRIPTIONS

OPCODE	FUNCTION	ATTRIBUTES	MODIFIER	MODIFIER RANGE
Alpha/Numeric				
AF	Alpha Shift	C,R,E,I,F,L,O	Field Length	1-99
AS	Auto Skip	C,R,E,I,F,L,O	Field Length	1-99
AD	Auto Dup	C,R,E,I,F,L,O	Field Length	1-99
AV	Verify Bypass	C,R,E,I,F,L,O	Field Length	1-99
NF	Numeric Shift	C,S,R,Z,E,I,F,L,B	Field Length	1-99
NS	Auto Skip	C,S,R,Z,E,I,F,L,B	Field Length	1-99
ND	Auto Dup	C,S,R,Z,E,I,F,L,B	Field Length	1-99
NV	Verify Bypass	C,S,R,Z,E,I,F,L,B	Field Length	1-99
BF	Verify/Entry Bypass	None	Field Length	1-99
Check Digit				
TF	Mod 10	C,E,I	Field Length	1-99
TS	Auto Skip	C,E,I	Field Length	1-99
TD	Auto Dup	C,E,I	Field Length	1-99
TV	Verify Bypass	C,E,I	Field Length	1-99
EF	Mod 11	C,E,I	Field Length	1-99
ES	Auto Skip	C,E,I	Field Length	1-99
ED	Auto Dup	C,E,I	Field Length	1-99
EV	Verify Bypass	C,E,I	Field Length	1-99
Accumulator				
XC	Clear	None	n Accumulator	0-3, 12, 13, 23
XD	Display	None	n Accumulator	0-3, 12, 13, 23
XA	Add	None	n Accumulator	0-3, 12, 13, 23
Insertion				
I1	Value of Accumulator #1 To Field	S,R,Z,L,B	Field Length	1-99
I2	Value of Accumulator #2 To Field	S,R,Z,L,B	Field Length	1-99
I3	Value of Accumulator #3 To Field	S,R,Z,L,B	Field Length	1-99
D1	Insert 1 Character	None	1 Character	Any Value
D2	Insert 2 Characters	None	2 Characters	Any Value
D3	Insert 3 Characters	None	3 Characters	Any Value
Table				
TI	Table Value Search	None	Table Number	1-255
TO	Non Table Value Search	None	Table Number	1-255
TX	Numeric Index	None	Table Number	1-255
TL	Opcode Index	None	Table Number	1-255
TA	Alpha Table Insert	C,R,E,I,F,L,O	Field Length	1-99
TN	Numeric Table Insert	C,S,R,Z,E,I,F,L,B	Field Length	1-99
Format Control				
EN	End	None	Control Record #	0-999
CO	Continue	None	Control Record #	0-999
CA	Call	None	Control Record #	0-99

* Attribute Selection

During control record creation and maintenance, certain field types can have associated with them one or more valid attributes which may be selected for the various opcodes. The attribute letters have the following meaning:

E	Must Enter Field	O	Alpha and Blank Only
C	Must Complete Field	F	Right Boundary Release
I	Inhibit Data Display	S	Right Justify Oversign
L	Left Justify Data	R	Right Justify
Z	Zero Fill Numeric	B	Blank Fill

Prompts

Prompts are entered in the same order as the fields described. Use an asterisk to separate prompts and mark the position of a field which does not receive prompt.

CHAPTER 3 - HYDROLOGY COMPONENT

The hydrology component contains models representing equations to compute runoff, soil moisture, percolation through the root zone, and evapotranspiration within the selected watershed. The model requires two major data sets - a precipitation data file for the period of simulation and a hydrology parameter set.

3.1 Precipitation Data File

To operate the hydrology model, two options are available. Option 1 is the daily rainfall model and the daily rainfall data is used for input (Section 3.11 below). Option 2 is the breakpoint rainfall model and hourly rainfall data is required (Section 3.12 below).

3.11 Daily Rainfall Model (Option 1)

The daily rainfall data can be obtained from the National Weather Service (NWS) monthly summary. Each state office and engineering staff has a readily available set of the NWS monthly summaries. In the near future, the information may be accessible from the Washington Computer Center through the state office Harris Terminals.

Card 1-37 R(1-365)

R() Daily rainfall (in), e.g. 2.07

The daily rainfall data can be recorded on the forms in back of this guide or on computer coding sheets. The format (10X, 10F5.2) states that 10 spaces (10X) in the left column is for the rainfall year and the next 50 spaces are divided into 5 spaces per column for 10 columns (10F5.2). The .2 limits the data entry to 2 decimal places. The remaining 20 spaces are to aid in putting the data together. The space is commonly used to put card numbers. The computer does not read in the first 10 spaces and last 20 spaces. Rainfall data are right justified and a decimal must be keypunched with all numeric values.

An entire year of rainfall data is required. The first rainfall entry is for January 1. A total of 37 cards (10 days/card) is necessary for one year of rainfall data. If no rainfall occurs on a day, leave the space blank and the computer will insert a zero or you can enter a zero. It is your choice.

The following sample is only a partial years data.

Format(10X,10F5.2)

74	2.07	.16	.37	.17	0	0	.34	0	0	0	1
74	.08	0	0	0	0	0	0	0	0	.87	2
74	0	0	0	.24	0	0	0	.10	.26	0	3
74	0	0	0	0	0	0	1.70	.20	0	0	4
74	0	0	0	0	.65	.90	0	0	0	.16	5

3.12 Hourly Break Point Input (Option 2)

Breakpoint rainfall data, required by hydrology model option 2, are available for several ARS research watershed locations across the United States.

For Option 2, breakpoint rainfall model, the data entry should be from hourly rainfall data or break point precipitation. This model gives the option for evaluations using small time intervals. An entire year's data does not have to be in the model, only those events that are desired for evaluation. However, the data is not commonly available.

Card 1. JYR, JDAY, NP, MIDNI, PRE(JDAY)

JYR Year of event (last 2 digits), e.g. 74

JDAY Day of event (Julian day), e.g. 001, Appendix 1, Table 1-1

NP Number of break points in the event, e.g. 6

MIDNI 0 if event takes place during only one day
1 if event overlaps into two days

PRE() Total rainfall for event (in), e.g. 2.07

Card 2. BP(1-NP), T(1-NP)

BP() Accumulated rainfall at time T() (in), e.g. 1.96

T() Time of measurement (min. from midnight), e.g. 38.0

The rainfall data are on a separate file from the parameters. Card 2 is repeated for each breakpoint (NP, card 1) during the event. A card 1 and a series of card 2's are repeated for each event during the simulation. A partial sample, two events, follows.

```
                                   Format(4I8,F8.0)
                                    Format(2F8.0)

      74       1       6       0  2.0700
     0.0     1.0
  1.9600    38.0
  2.0300    47.0
  2.0400    54.0
  2.0500   154.0
  2.0700   180.0
      74       2       5       0   .1600
     0.0  1213.0
   .0500  1215.0
   .0800  1217.0
   .0900  1223.0
   .1600  1230.0
```

3.2 Hydrology Parameters

The hydrology parameters are bits of information about the physical characteristics of the watershed, needed by the hydrology models.

The hydrology parameter file is necessary for both options 1 and 2, hydrology models. Figure 3.1 and 3.2 illustrate the schematic representations of card decks for options 1 and 2, respectively.

A glossary for the parameters is in Table 3.1

Appendix 1 is provided to assist the user in estimating parameter values; however, when field measured values are available, they should be used.

Page numbers from the CREAMS manual refers to documentation and explanation of parameters. The page numbers are listed in the left margin in parenthesis under card description. The user should refer to these pages in the CREAMS manual for a more complete explanation of the parameter and ways of evaluating them.

The coding sheets are at the end of the guide and duplicates can be used to assist in the compilation of parameter values for keypunching. However, the General Purpose Coding Sheet can be used, if preferred.

The values in the coding sheet heading are sample values and indicate when a decimal is required. For example, an e.g. 3.2 is a sample value, and the decimal tells the user that a decimal is required in the value the user selects. Also, all values are giht justified; i.e., the last digit must be in the right column within the designated data field. Chapter 2 describes formats.

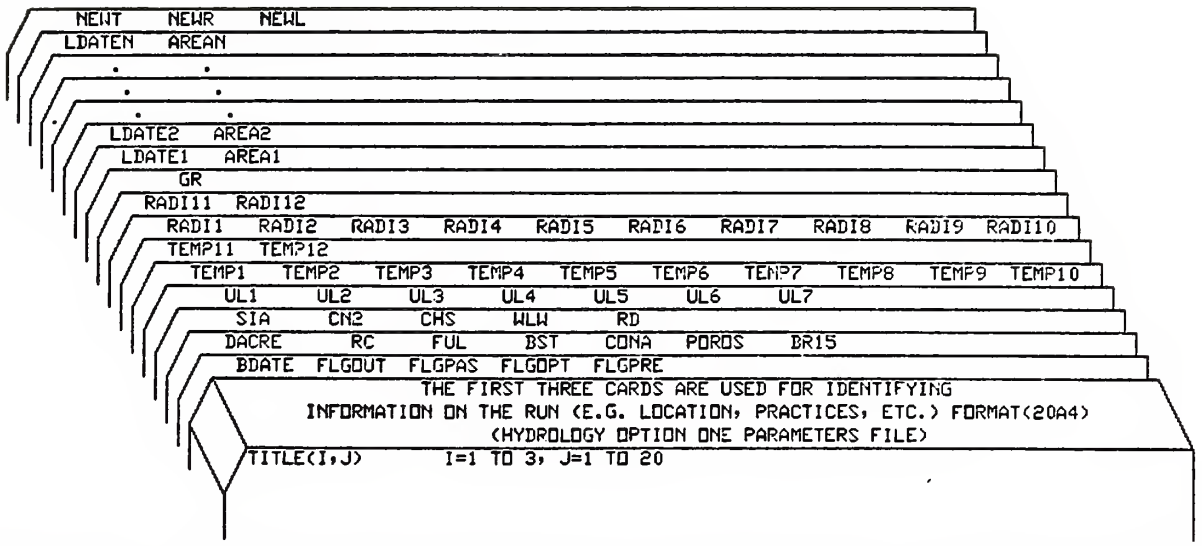


Figure 3-1. —Sample deck arrangement of input parameters for hydrology model option 1.

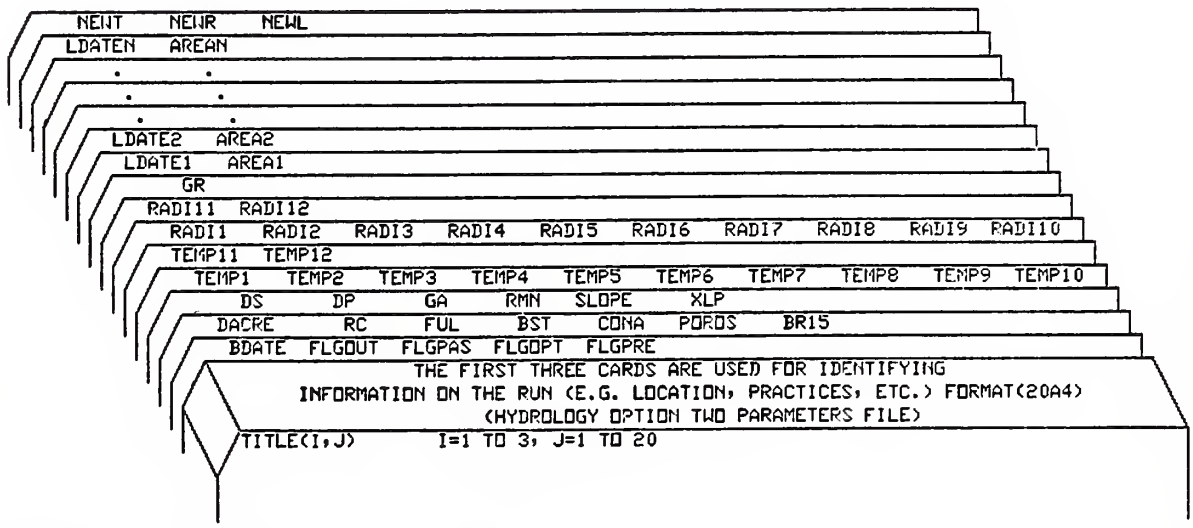


Figure 3-2. --Sample deck arrangement for breakpoint rainfall input for hydrology model option 2.

Table 3.1.--Hydrology model parameters

Parameter	Model option	Reference/definition[1/]	Source of estimate	Quality
DACRE	Both	Field area in acres.	Measurable	Good.
RC	Both	Saturated hydraulic conductivity, in/hr (K_s in equation I-9).	Estimate from SCS soil class; or measure, infiltrometer or Appendix 1, Table 1-2.	Poor to good; sensitive.
FUL	Both	Portion of plant-available water storage filled at field capacity.	Appendix 1, Table 1-3.	Well defined quantity.
BST	Both	Portion of plant-available water storage filled when simulation begins.	Field measure or estimate.	Not sensitive.
CONA	Both	Soil evaporation parameter, a_s (eq. I-43).	Estimate from Appendix 1, Table 1-3.	Fair.
POROS	Both	Ø, soil porosity (eq. I-B).	Estimate from Appendix 1, Table 1-3.	Not sensitive.
BR15	Both	Immobile soil water content.	Estimate from Appendix 1, Table 1-3.	Not sensitive.
TEMP(1-12)	Both	Average monthly temperature (read values) °F.	Climatological data.	Good, but only average.
RADI(1-12)	Both	Average monthly net radiation (read 12 values) langleys/day.	Climatological data or Appendix 1, Table 1-B.	Good, but only average.
GR	Both	Winter cover factor (1 for crops, 0.5 for grass.)	Crop information	Rough.
X(I)	Both	Leaf area index, day 1 [must specify X(1) and X(366)].	Crop information Appendix 1, Table 1-9.	Good.
SIA	1	Initial abstraction coefficient CN method (eq. I-2).	Use 0.2 in absence of measured value	Fair.
CHS	1	Channel slope (CS in eq. I-7).	Field measurement	Good.
CN2	1	SCS curve number for AMC condition II.	Appendix 1, Table 1-4,1-5,1-6.	Fair.
WLW	1	Watershed length/width ratio.	Watershed map	Good.
UL(1-7)	1	Plant-available water storage in 7 soil layers in inches of root zone.	Difference between total soil porosity and 15 bar water content.	Fair to good.
DS	2	Depth of surface soil layer.	User estimate Range of 0.2 to 2.0 inches.	Varies, subjective.
DP	2	Depth of root soil zone	Knowledge of soil; rooting depth.	Fair.
GA	2	G in equation I-16. Effective capillary tension.	Soil data; infiltrometer tests. Appendix 1, Table 1-7.	Fair to good.
RMN	2	Manning roughness for field surface (C_c in eq. I-30).	Appendix 1, Table 2-2, 2-5.	Good; subjective.
SLOPE	2	Average field slope (S_c in eq. I-36).	Maps; field survey.	Good.
XLP	2	Length of flow plane (L in eq. I-36).	Maps; field survey.	Good.

1/ Equation numbers (example, I-9) refer to CREAMS manual.

3.21 Parameters for Both Options

Listed below are parameter values required to run both options of the hydrology model. A brief description of the parameter and a table or source containing it's value are also listed. Numbers following the e.g. notation are given as example values. Where default values are available, the default value is labeled.

Card 1-3. TITLE

TITLE	Three lines of 80 characters each for alphanumeric information to be printed at the beginning of the output to identify the computer output to the user.

Card 4. BDATE, FLGOUT, FLGPAS, FLGOPT, FLGPRE

BDATE	The beginning date for simulation. It must be less than the first storm date (Julian date), e.g. 73138 Appendix 1, Table 1-1.
FLGOUT	0 for annual summary output 1 for storm by storm and annual summary output
FLGPAS	0 if no hydrology file is to be created 1 if the program should create a hydrology file for use by the Erosion Program
FLGOPT	1 for the daily rainfall model (option 1) 2 for the breakpoint or hourly rainfall model (option 2)
FLGPRE	0 for the breakpoint precipitation data 1 for hourly precipitation data (only used for hydrology model option 2)

Card 5. DACRE, RC, FUL, BST, CONA, POROS, BR15

DACRE	Field area (acres), e.g. 3.2
(pg. 184)[1/] RC	Effective saturated conductivity of the soil (in/hr), e.g. 0.19, Appendix 1, Table 1-2
FUL	Fraction of pore space filled at field capacity, e.g. 0.75 FUL = Field capacity ÷ total porosity, Appendix 1, Table 1-
(pg. 339) BST	Fraction of plant-available water storage filled when simulation begins, e.g. 0.50
(pg. 32) CONA	Soil evaporation parameter, e.g. 3.75, Appendix 1, Table 1-3
POROS	Soil porosity (cc/cc), e.g. 0.41, Appendix 1, Table 1-3
BR15	Immobile soil water content at 15 bars tension (in/in, or % by volume) e.g. 0.17, wilt point, Appendix 1, Table 1-3

1/ The page numbers refer to the appropriate instructions in the CREAMS manual, Conservation Research Report Number 26.

----- For Daily Rainfall Model (Option 1)

Card 6.	SIA, CN2, CHS, WLW, RD	
(pg. 179)	SIA	Initial abstraction coefficient for SCS Curve Number method, constant at 0.2
NEH4	CN2	Condition II SCS Curve Number, e.g. 80.0 Appendix 1, Tables 1-4, 1-5, and 1-6
	CHS	Outlet channel slope (ft/ft) from or for the field, e.g. 0.022, from Field Map
(pg. 339)	WLW	Watershed length/width ratio, e.g. 2.1 from field map
(pg. 504 or 78)	RD	Maximum rooting depth (in), e.g. 24.0
Card 7.	UL(1-7)	
(pg. 339)	UL()	Plant-available soil water storage for each of 7 soil storages (in), e.g. 0.16; Appendix 1, Table 1-3 UL(I) = (porosity--wilt point) Fraction (I) x root depth (Top storage depth = 1/36, 2nd storage depth = 5/36, other storage depths = 1/6 of rooting depth (RD, card 6))

----- For Breakpoint Rainfall Model (Option 2)

Card 6.	DS, DP, GA, RMN, SLOPE, XLP	
	DS	Depth of surface soil layer (in), e.g. 2.0 range .2-2.0
(pg. 504)	DP	Depth of maximum root growth layer (in), e.g. 22.0
(pg. 184)	GA	Effective capillary tension of soil (in), e.g. 13.0 Appendix 1, Table 1-7
(pg. 241) (pg. 248)	RMN	Manning's n for overland flow, e.g. 0.03 Appendix 2, Table 2-2 and 2-5
(pg. 185)	SLOPE	Effective hydrologic slope (ft/ft), e.g. 0.015 From Field Map
(pg. 185)	XLP	Effective hydrologic slope length (ft), e.g. 350.0 From Field Map

----- Both Options Continue

Card 8,9.	TEMP(1-12)	
	TEMP()	Average monthly temperatures (degrees F.), e.g. 45.0 Climatological data summary

Card 10,11. RADI(1-12)

(pg. 180-182)

	RADI()	Average monthly solar radiation values (langleys/day), e.g. 218.0, Appendix 1, Table 1-8

Card 12. GR

(pg. 179)

	GR	Winter cover factor 1.0 for crops - bare in winter 0.5 for continuous grass, pasture, small grains, or range

Card 13. LDATE, X(I)

(pg. 183)

	LDATE	Date (Julian day), e.g. 001, Appendix 1, Table 1-1
	X(I)	Leaf area index for the crop grown the first year of simulation, e.g. 0.0, Appendix 1, Table 1-9

A card 13 is repeated as many times as is necessary to define the LAI curve. The first card 13 should always have the date 001. The last should always have the date 366.
See Table 3.2 for example.

- - - - - - - -

Temperatures, solar radiation values, and leaf area index parameters can be updated at the end of each year. If they're to be updated, they will be read in the same sequence and format at the initial inputs. The winter cover factor (GR, card 12) will be read if the leaf area index is updated.

- - - - - - - -

Card 14. NEWT, NEWR, NEWL

NEWT	0 use the temperatures from last year 1 read a new set of temperatures (cards 8 & 9) [-1 stop program execution
NEWR	0 use the solar radiation values from last year 1 read new solar radiation values (cards 10 & 11)
NEWL	0 use the leaf area index from last year 1 read a new set of leaf area index values and process them. Card 12 and new set of card 13 values must be entered.

A card 14 is read <u>after</u> each year of simulation. To stop execution of the program a negative value is read in NEWT. If any of the "NEW" parameters call for further input the appropriate data must be inserted after that card 14. That is cards 8 and 9 for NEWT, 10 and 11 for NEWR, and card 12 and a set of 13's for NEWL. There is a card 14 for each year of simulation after the first year is processed corresponding to the number of years in the rainfall file.

The following sample is a complete data set, good for a three year run, using the daily rainfall option. Note that card 14 is repeated three times, with the third repetition having a negative value that stops the program.

TABLE 3.2.--HYDROLOGY PARAMETER DATA

CARD NO										
1	DAILY HYDROLOGY PARAMETERS - GEORGIA PIEDMONT									
2	MANAGEMENT PRACTICE ONE									
3	CONTINUOUS CORN - CONVENTIONAL TILLAGE									
4	73138	0	1	1						
5	3.200	0.190	0.750	0.500	3.750	0.410	0.170			
6	0.200	80.000	0.022	2.100	24.000					
7	0.160	0.820	0.720	0.520	0.610	0.700	0.660			
8	45.0	47.0	52.0	61.0	70.0	77.0	79.0	78.0	73.0	63.0
9	51.0	44.0								
10	218.0	290.0	380.0	488.0	533.0	562.0	532.0	508.0	416.0	344.0
11	268.0	211.0								
12	1.000									
13	1	0.000								
13	122	0.000								
13	152	0.200								
13	166	0.200								
13	183	1.000								
13	192	2.500								
13	197	2.600								
13	202	2.700								
13	228	2.200								
13	255	0.000								
13	366	0.000								
14	0	0	0							
14	0	0	0							
14	-1	0	0							

CHAPTER 4 - EROSION AND SEDIMENT YIELD COMPONENT

The erosion and sediment yield component operates on the same watershed as the hydrology model. The model computes erosion, sediment yield, and particle composition of the sediment on a storm-by-storm basis; however, SCS should run the model for a 12 month cycle or longer when comparing resource management systems.

The erosion and sediment model combines new modeling concepts with such commonly accepted relationships as the Universal Soil Loss Equation (USLE). The model is structured around three basic elements: overland flow; concentrated (channel) flow; and an impoundment (pond). The model operates in a sequence of these elements; the overland flow element is called by the computer first, followed by a channel or pond element, or both, if these additional elements are needed.

The impoundment element is designed to simulate a tile outlet terrace that drains between storms. It can also simulate impounded water behind field ridges and culverts, as long as the discharge is controlled by a pipe outlet and the impoundment drains completely between storms. This is not to be used to simulate a farm pond.

Two major sets of data are necessary to operate the erosion and sediment yield component, i.e., Hydrology Pass File from the Hydrology model and the Erosion and Sediment Parameter file. The hydrology pass file is stored on tape at the Harris terminal where the hydrology component is loaded. The Harris terminal operator has instructions for retrieval of the pass file from the tape and for loading the model when the erosion and sediment yield parameter set is prepared. An illustration of the pass file is given in Table 4.1 and 4.2. This chapter describes the input data needed for the erosion and sediment parameter file.

Table 4.1.--Hydrology pass file description used as input to the erosion/sediment yield model

Storm/Hydrology Data Pass File

Line Format SDATE, RNFALL, RUNOFF, EXRAIN, EI, DP, PERCOL, AVGTMP, AVGSWC, ACCPEV, POTPEV, ACCSEV, POTSEV

SDATE	Date of storm (Julian date), e.g. 73146
RNFALL	Volume rainfall (in), e.g. 4.27
RUNOFF	Volume of runoff (in), e.g. 1.58
EXRAIN	Characteristic excess rainfall rate (in/hr), e.g. 4.13
EI	Wischmeier English EI for the given storm, e.g. 67.41
DP	Number of days since the last storm when percolation occured, e.g. 1
PERCOL	Percolation below the root zone (in), e.g. 1.015
AVGTMP	Average temperature between storms (Degrees F.), e.g., 72.8
AVGSWC	Average soil water between storms (in/in), e.g. 0.3239
ACCPEV	Actual EP (evaporation from plants) for the period between storms (in), e.g. 0.022/0.056
POTPEV	Potential EP for the period between storms (in), e.g. 0.022/0.056
ACCSEV	Actual ES (evaporation from soil) for the period between storms (in), e.g. 0.000/0.000
POTSEV	Potential ES for the period between storms (in), e.g. 0.000/0.000

This information is repeated for each rainfall event. The Hydrology program creates a user named pass file from the title cards 1-3 for use as input to the erosion model.

Table 4-2.--A small sample of a typical Storm/Hydrology Data file follows to illustrate the file structure.

Format(I6,F6.2,F6.2,F6.2,F6.2,I2,F6.2,F6.2,F6.3,F6.3,F6.3,F6.3,F6.3)

```
 74135  4.42  3.62  2.61 69.21 1  0.33 73.20 0.388 0.001 0.001 0.254 0.254
 74141  1.38  0.45  0.43 12.81 5  0.23 74.13 0.358 0.022 0.022 0.257 0.257
 74142  1.66  1.14  0.96 16.92 1  0.25 75.04 0.387 0.007 0.007 0.257 0.257
 74145  0.18  0.00  0.00  0.59 3  0.02 75.54 0.354 0.064 0.064 0.259 0.259
```

4.1 PREPARATION OF INPUT DATA FILES

This section shows how to assemble input data files by briefly describing the parameters and their location in the data set.

The model reads input from two separate files: a computer created hydrology pass file and the user supplied erosion parameter file. Unless specifically stated otherwise in the card description, all numeric input formats consist of 8-column fields. Integers are read with I8 formats, and real numbers are read with F8.0 formats. Integers must be right justified in columns 1-8, 9-16, 17-24, ..., 73-80. Real numbers must be contained within these same columns, and the decimal point must be entered in the number. A sample value is given after each parameter is defined. If the sample has a decimal, the parameter is real; otherwise, it is an integer. The alphanumeric input is read with A4 formats. Specific instructions are given whenever alphanumeric input is required. A schematic representation of the parameter data deck is shown in figure 4.1. Figure 4.2 is a schematic data deck with sample data for 3 years on watershed P-2 at Watkinsville, Georgia.

Blank cards or blank entries can be used on data cards to indicate a zero entry. However, it may be more convenient to insert the zero values for editing purposes.

There are two types of parameters the model uses. Some are constant and never change throughout the model run. Other parameters are updateable. For example, Mannings' "n", soil loss ratio, etc., may change with cultivation and cover. If some updateable parameter does not change when others change, data cards for these parameters are omitted, and the previous values read in for these parameters will be used by the program. This is discussed in greater detail in the sections on updateable parameters.

4.2 Erosion and Sediment Parameters

A glossary of terms and source of information is in Table 4.3.

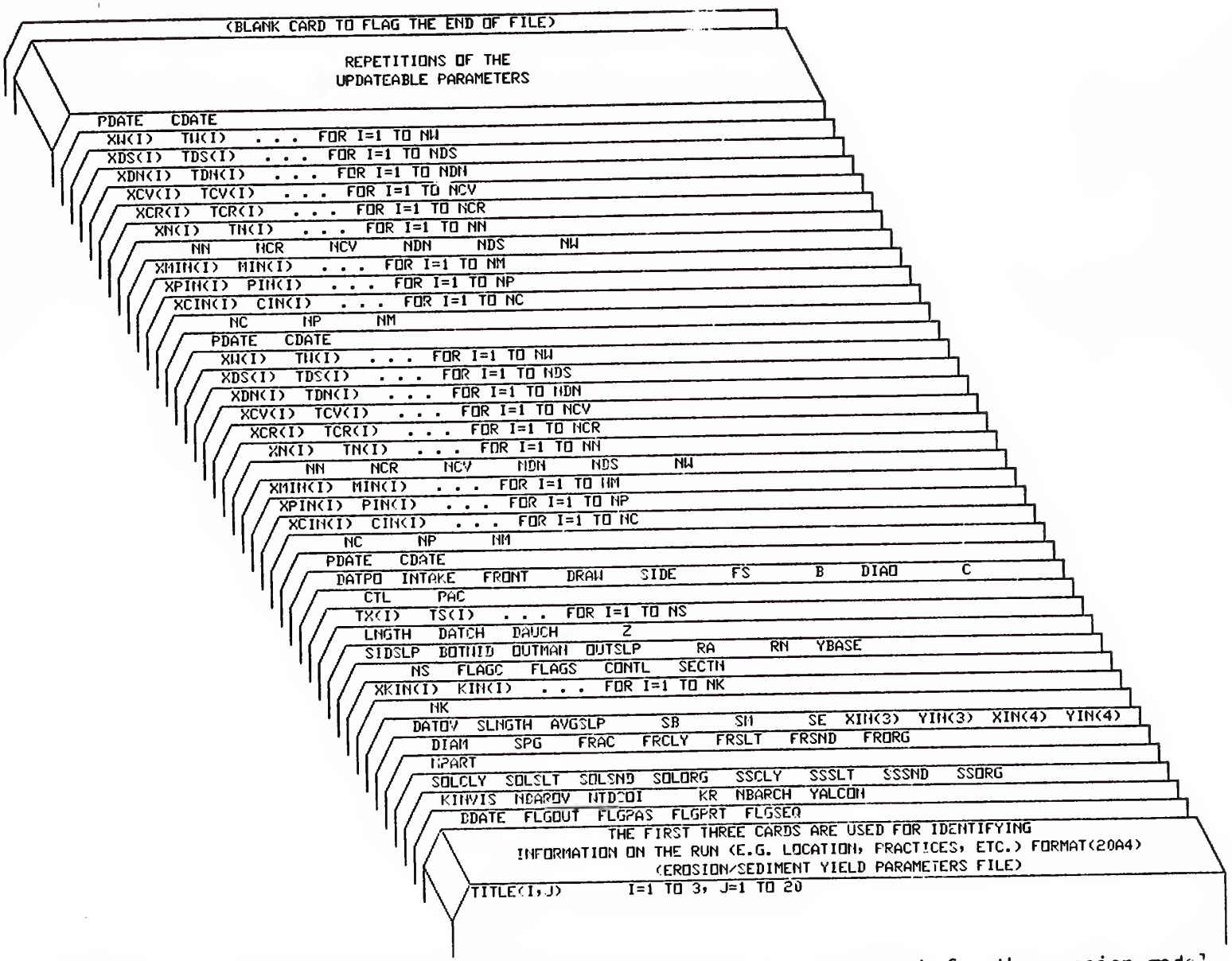
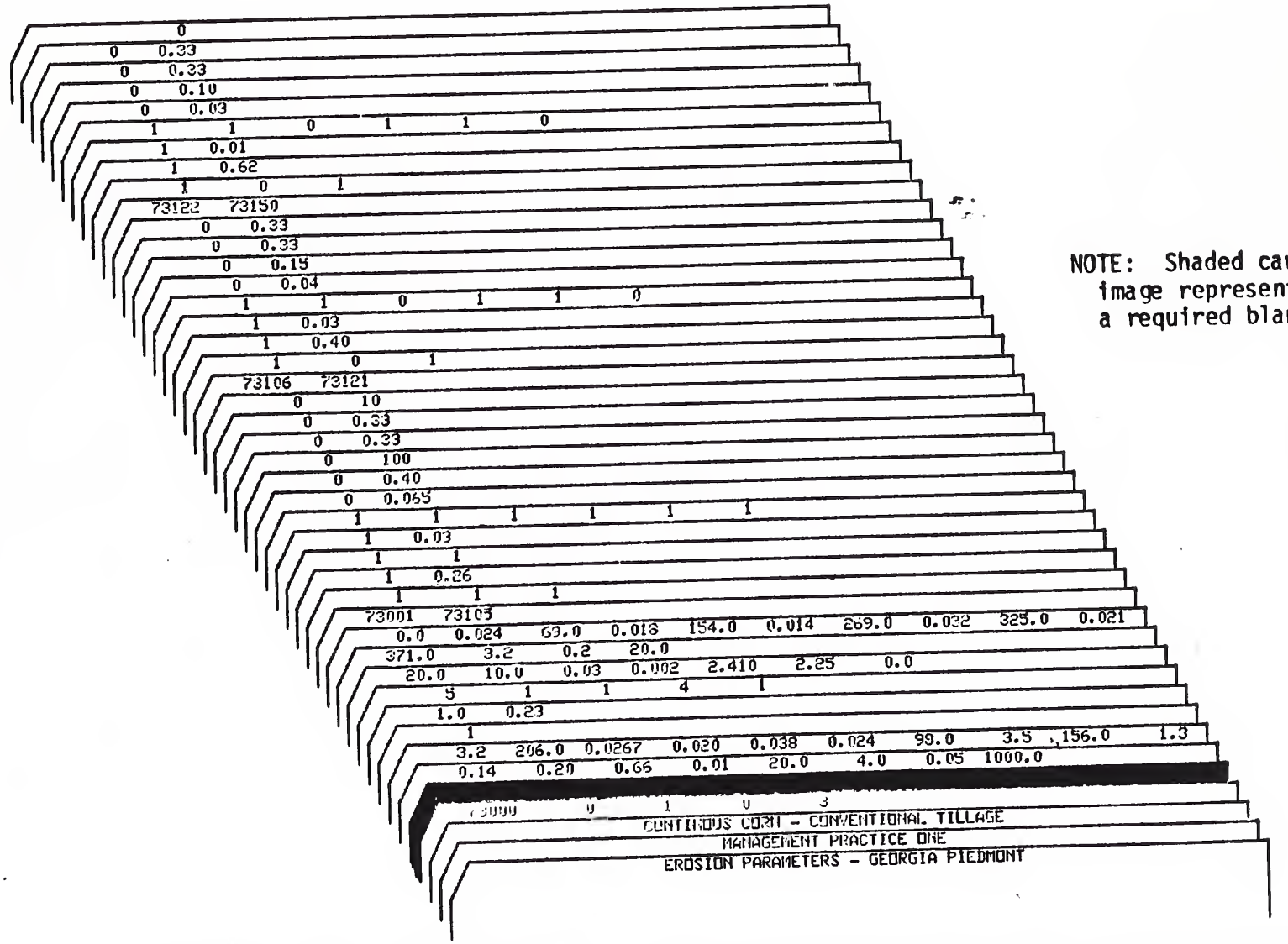


Figure 4-1. --Sample format and input parameter card deck arrangement for the erosion model.



NOTE: Shaded card image represents a required blank

Figure 4-2 —Sample deck arrangement of input data for the erosion model on watershed P2, Watkinsville, Ga.

Table 4.3.--Erosion model parameters, definitions, sources, and quality of estimates

Parameter	Definition	Source of estimate	Quality of estimate
KINVIS - - -	Kinematic viscosity	Appendix 2, Table 2-1.	Excellent. However, only parameter expressing temperature effect. Quality for expressing that effect unknown.
NBAROV - - -	Manning's "n" for overland flow over bare smooth soil (fine seedbed).	Use default	Good but subjective.
NBARCH - - -	Manning's "n" for channel flow over bare, smooth soil (fine seedbed).	Appendix 2, Table 2-5	Good but subjective.
WTDSOI - - -	Weight density of soil mass.	Soil survey and Appendix 2, Table 2-3	Good.
KR - - - - -	Soil erodibility factor for channel erosion.	Use default value	Poor. May require calibration.
YALCON - - -	Constant in Yalin sediment transport equation.	Model manual	Good. Supposedly fixed, but may require calibration.
Sand, silt,- clay. (card 6)	Primary particle distribution of original soil mass.	Soil survey, soil tests experience. Appendix 2, Table 2-6	Very good.
Particle - - characteristics (Card 6 and 8)	Particle size class and density of particle.	Model manual and soil survey information or Appendix 2, Table 2-6	Good for most midwestern silt loam soils; unknown for most other soils.
SLNGTH - - -	Overland flow slope length.	Maps, soil survey, field observation.	Good, but problem of choosing representative length.
AVGSLP - - -	Average overland flow slope steepness.	Maps, soil survey, field observation.	Good, but problem of choosing representative length.
SB - - - - -	Slope at beginning of overland flow profile.	Maps, soil survey, field observation.	Good, but problem of choosing representative steepness.
SM - - - - -	Slope at middle of overland flow profile.	Maps, soil survey, field observation.	Good, but problem of choosing representative steepness.
SE - - - - -	Slope at end of overland flow profile.	Maps, soil survey, field observation.	Good, but problem of choosing representative steepness.
XIN(3),YIN(3) XIN(4),YIN(4)	Coordinates of miduniform slope section.	Maps, soil survey, field observation.	Good, but problem of choosing representative section.
DATOV- - - -	Overland flow area	Map	Very good.
KIN(I) - - -	Soil erodibility factor	Soil series sheet; also USLE Handbook.	Good, based on extensive plot data.
CIN(I)- - - -	Cover-management factor (rill-interrill erosion)	USLE Handbook, and Appendix 2, Tables 2-7, 2-8, 2-9, 2-10, and 2-11.	Good, based on extensive plot data.
PIN(I)- - - -	Contouring factor (rill-interrill erosion)	USLE Handbook and Appendix 2, 2-12.	Poor; value poorly defined for individual storms.
MIN(I)- - - -	Manning's n for overland flow over a covered soil surface.	Appendix 2, Table 2-2.	Good, but subjective.

4.21 Initial General Parameter Inputs

Card 1-3. Title()

Title — Three lines of 80 characters each for alphanumeric information to be printed at the beginning of the output. format (20A4)

Card 4. BDATE, FLGOUT, FLGPAS, FLGPRT, FLGSEQ

BDATE — The beginning date for simulation. It must be less than the first storm date (SDATE). (Julian date), e.g. 73000

FLGOUT
- 0 for annual summary output
- 1 for monthly and annual summary output
- 2 for storm by storm and both types of summary output
- 3 for a single storm and detailed output by segments (caution - FLGOUT = 2 or 3 will produce large printout volume.)

FLGPAS
- 0 if no file should be created for the Chemicals program
- 1 if the program should create a file for use by the Chemicals program

FLGPRT
- 0 for the particle specifications to be computed with default values
- 1 for the particle specifications to be read in

FLGSEQ — Execution sequence of erosion submodels:

(pg. 222)
- 1 overland
- 2 overland-pond
- 3 overland-channel
- 4 overland-channel-channel
- 5 overland-channel-pond
- 6 overland-channel-channel-pond

FLGSEQ is used to decide whether certain groups of cards should be read in. Cards 9-11 are always read, and only once. Cards 12-15 are only read when FLGSEQ is greater than or equal to 3, and they are repeated for a second channel if FLGSEQ is 4 or 6. Cards 16 and 17 are read if FLGSEQ is 2, 5, or 6, and they are never read more than once. See Figure 4.3 for sequence examples.

Card 5. KINVIS, NBAROV, WTDSOI, KR, NBARCH, YALCON

If a default value (model inserted value) is to be used, leave that position on the card blank. Otherwise enter the desired value. If all defaults are assumed, insert a blank card.

(pg 223) KINVIS Kinematic viscosity (ft^2/sec), e.g. default 1.21E-05 (1.21×10^{-5}) Appendix 2, Table 2-1

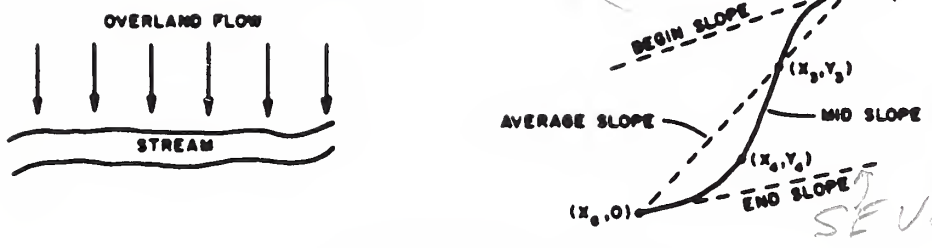
(pg. 223) NBAROV Manning's "n" for overland flow over bare soil, use 0.01. In the updateable parameters on p.41, the Manning's "n" should never be lower than the value on this card.

(pg. 223) WTDSOI Weight density of soil (lbs/ft^3), e.g. default 96.0 Appendix 2, Table 2-3

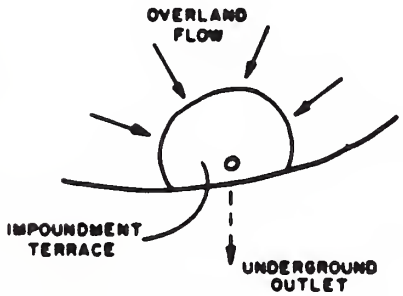
(pg. 223) KR Soil erodibility for erosion by concentrated flow $((lbs/ft^2\ sec)(1/lbs/ft^2)^{1.05})$ e.g. default 0.135 or 0.39K from soil series sheet

(pg. 224) NBARCH Manning's "n" for channel flow over bare soil e.g. default 0.03., Appendix 2, Table 2-5.

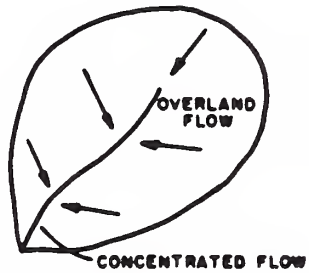
(pg. 224) YALCON Yalin constant for sediment transport, use 0.635



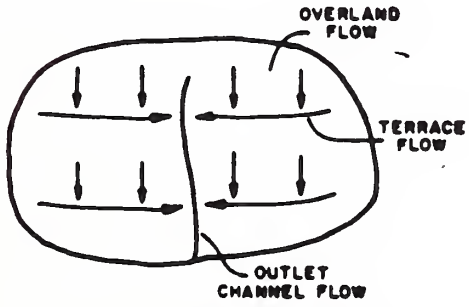
(1) OVERLAND FLOW
SEQUENCE AND SLOPE REPRESENTATION



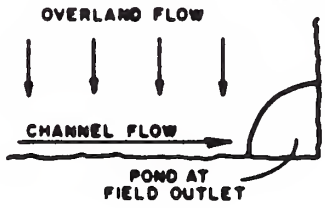
(2) OVERLAND FLOW
POND SEQUENCE



(3) OVERLAND FLOW
CHANNEL SEQUENCE



(4) OVERLAND FLOW
CHANNEL-CHANNEL SEQUENCE



(5) OVERLAND FLOW
CHANNEL-POND SEQUENCE

Figure 4.3 --Schematic representation of typical field systems in the field-scale erosion/sediment yield model.

Card 6. SOLCLY, SOLSLT, SOLSND, SOLORG, SSCLY, SSSLT, SSSND, SSORG

(pg. 225) SOLCLY Fraction of clay in the original surface soil layer exposed to erosion, e.g. 0.14, Appendix 2, Table 2-4

(pg. 225) SOLSLT Fraction of silt in the original surface soil layer exposed to erosion, e.g. 0.20, Appendix 2, Table 2-4

(pg. 225) SOLSND Fraction of sand in the original surface soil layer exposed to erosion, e.g. 0.66, Appendix 2, Table 2-4

(pg. 225) SOLORG Fraction of organic matter in the original surface soil layer exposed to erosion, e.g. 0.01, Soil Series sheet

(pg. 227) SSCLY Specific surface area of clay particles (meters^2/gram of soil), e.g. default 20.0

(pg. 227) SSSLT Specific surface area of silt particles (meters^2/gram of soil), e.g. default 4.0

(pg. 227) SSSND Specific surface area of sand particles (meters^2/gram of soil), e.g. default 0.05

(pg. 227) SSORG Specific surface area of organic matter particles (meters^2/gram of organic carbon), e.g. default 1000.0 (organic carbon = organic matter/1.73)

* The fractions of clay, silt, and sand should total 1.0, with the organic matter being a fraction of the total of organic matter and soil particles.

If the specific surface area values are left blank the model defaults to 20.0, 4.0, 0.05, and 1000.0 for clay, silt, sand, and organic matter, respectively. Appendix 2, Table 2-6.

If the particle specifications flag (FLGPRT, card 4) is 0 then no card 7 or card 8's will be read, and the number of particle types (NPART card 7) will be calculated.

Card 7. NPART

(pg 42)

NPART The number of particle types, e.g. 5 (10 is the max. no.)

Card 8. DIAM, SPG, FRAC, FRCLY, FRSLT, FRSND, FRORG
(Not required if card 7 was not read)

(pg. 226) (Repeat card 8 for each particle (NPART, card 7))

DIAM Particle diameter (mm), e.g. 0.030

SPG Specific gravity of particle (g/cm^3), e.g. 1.8

FRAC Fraction of sediment detached that is made up of this particular particle type, e.g. 0.50

FRCLY Fraction of particle made up of clay, e.g. 0.3

FRSLT Fraction of particle made up of silt, e.g. 0.5

FRSND Fraction of particle made up of sand, e.g. 0.2

FRORG Fraction of particle made up of organic matter, e.g. 0.02

The sum of the fractions for clay, silt, and sand should equal 1.0, with the organic matter being a fraction of the total organic matter and soil particles.

4.22. Initial Overland Flow Inputs

NOTE: Contour maps of the field and typical overland profile plot must be developed before completing this section. Refer to figure 4.3 and 4.4.

Card 9. DATOV, SLNGTH, AVGSLT, SB, SM, SE, XIN(3), YIN(3), XIN(4), YIN(4)

(pg. 228) DATOV Area represented by overland flow profile (acres), e.g. 3.2

(pg. 228) SLNGTH Slope length of representative overland flow profile (ft), e.g. 206

(pg. 230) AVGSLP Average slope of representative overland flow profile (ft/ft), e.g. 0.027

(pg. 231) SB Slope at the upper end of profile, e.g. 0.020

(pg. 230) SM Slope of mid-section, e.g. 0.0380

(pg. 231) SE Slope at the lower end of profile, e.g. 0.024

(pg. 231) XIN(3) Distance from top of slope is where mid-uniform section begins (ft), e.g. 98.0

(pg. 231) YIN(3) Elevation above lowest point to where mid-uniform section begins (ft), e.g. 3.4

(pg. 231) XIN(4) Distance from top of slope where mid-uniform section ends (ft), e.g. 156.0

(pg. 231) YIN(4) Elevation above lowest point where mid-uniform section ends (ft), e.g. 1.3

(pg. 231) When simulating a uniform slope SB = SM = SE = AVGSLP; XIN(3) = XIN(4) = SLNGTH; YIN(3) = YIN(4) = 0.0
Refer to Figure 4.4

Card 10. NK

NK Number of slope segments differentiated by changes in soil erodibility factor, e.g. 1

Card 11. XKIN(I), KIN(I), . . . for I=1 to NK (card 10)

(pg. 231) XKIN(I) Relative horizontal distance from the top of the slope to the bottom of segment I, e.g. 1.0

KIN(I) Soil erodibility factor for slope segment just above XKIN(I) (tons/acre/English EI) e.g. 0.23. This value is on the soil series sheet or Field map.

To illustrate input, assume a slope length of 200 ft and K = 0.4 tons/acre/EI for the first 150 ft, and 0.2 ton/acre/EI for the last 50 ft. The input card would be:

0.75 0.4 1.0 0.2.

4.23. Initial Channel Inputs

The order of the following cards depends on the execution sequence (FLGSEQ, card 4). In some cases the following cards (12-17) won't be used, e.g. FLGSEQ = 1, or there may be two sets of channel inputs (12-15) and a pond (16, 17), e.g. FLGSEQ = 6.

NOTE: Channel profile and cross-section plot must be developed before completing this section.

Card 12. NS, FLAGC, FLAGS, CONTL, SECTN

NS Number of channel segments differentiated by changes in slope, e.g. 5

(pg. 242) FLAGC Flag that indicates channel shape:

1 - Triangular channel
2 - Rectangular channel
3 - Naturally eroded channel

(pg. 243) FLAGS 1 for program to use curves for slopes of energy grade-line. (friction slope, this is the usual flow assumption.)
2 for program to assume friction slope equals channel slope. Appendix 2, Table 2-16.

(pg. 243) CONTL 1 if critical depth controls depth in outlet channel
2 if uniform flow controls in the outlet channel
3 if the program should use the maximum of 1 and 2
4 if the program should use a rating curve for control depth at outlet.

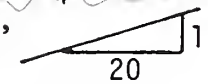
$$Q = RA\ (Y - YBASE)^{RN}$$

$Q(ft^3/sec)$, Y and YBASE(ft),

(pg. 243) SECTN 1 if the shape of the outlet channel is triangular
2 if the shape is rectangular

Card 13. SIDSLIP, BOTWID, OUTMAN, OUTSLP, RA, RN, YBASE

(pg. 245) SIDSLP Side slope of a cross-section of the outlet control channel, expressed as horizontal to vertical, e.g. 20.0
Caution Side slopes are expressed in reverse of normal expression; i.e.,



$$SIDSLP = \frac{20}{1} = 20.0$$

SLNGTH = 206 ft

$$AVGSLP = \frac{5.5}{206} = 0.027$$

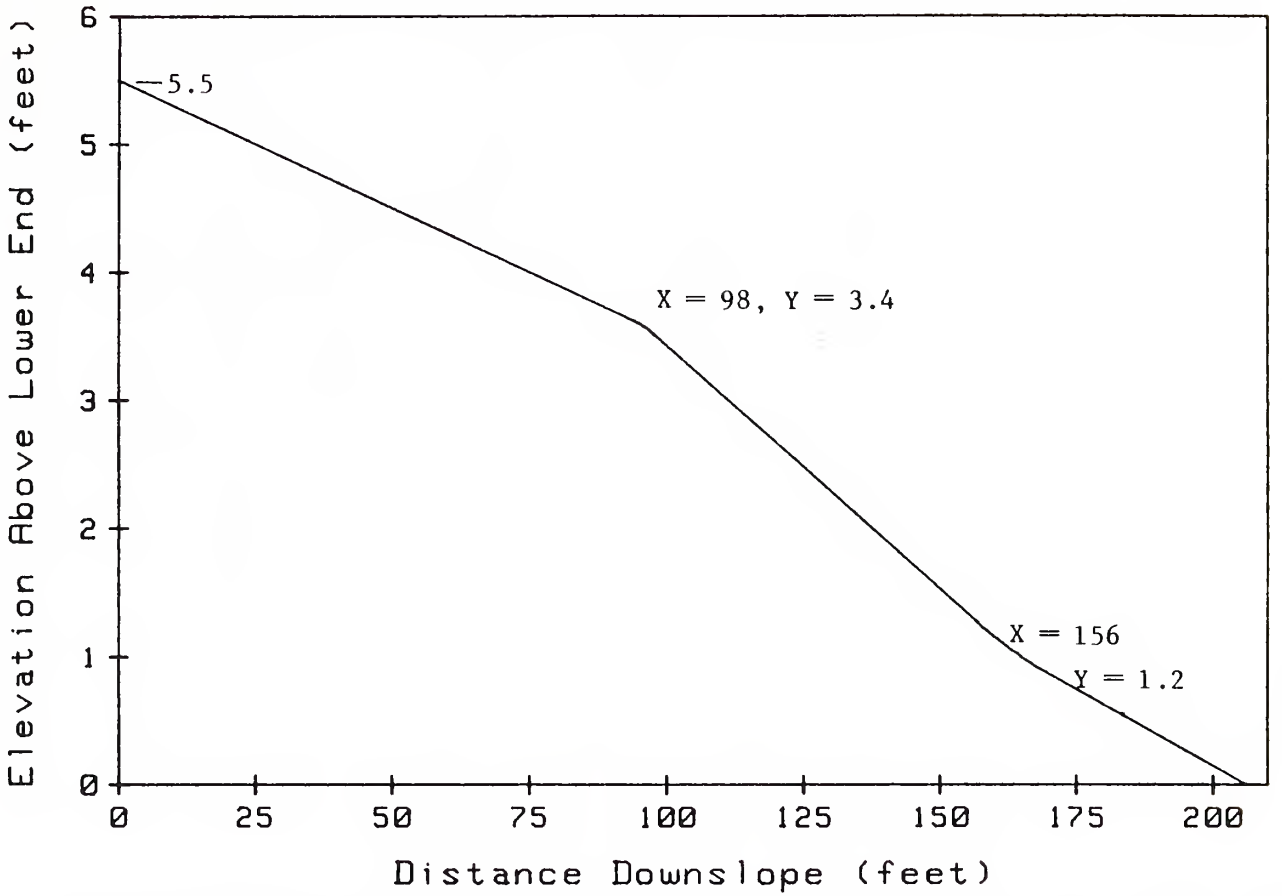
$$SB = \frac{5.5-3.4}{98} = 0.02$$

$$SM = \frac{3.4-1.2}{156-98} = 0.038$$

$$SE = \frac{1.2-0.0}{206-156} = 0.024$$

XIN(3) = 98, YIN(3) = 3.4

XIN(4) = 156, YIN(4) = 1.2



Overland Flow Profile For Watkinsville GA (P2)

Figure 4.4

	BOTWID	Bottom width of the outlet control channel (ft), e.g. 10.0
	OUTMAN	Manning's "n" for the outlet control channel, e.g. 0.030 See table 2-5
	OUTSLP	Slope of the outlet control channel, e.g. 0.002 ft/ft
(pg. 244)	RA	Coefficient in the rating curve equation e.g. 2.41
(pg. 244)	RN	Exponent in the rating curve equation, e.g. 2.25
(pg. 244)	YBASE	Minimum depth for flow to begin (ft), e.g. 0.0

See Card 12 CONTL = 4

Card 14. LNGTH, DATCH, DAUCH, Z

(pg. 244)	LNGTH	Channel length (ft), e.g. 371.0
(pg. 244)	DATCH	Total drainage area of channel at lower end of channel (acres), e.g. 3.2
(pg. 244)	DAUCH	Drainage area above upper end of channel (acres), e.g. 0.2
(pg. 245)	Z	Sideslope of channel cross-section, expressed as horizontal to vertical, e.g. 20.0

If the channel shape flag (FLAGC, card 12) is a 2 or 3, enter the value for Z that most closely approximates the channel shape.

Card 15. TX(I), TS(I), . . . for I=1 to NS (card 12)

	TX(I)	Distance from lower end of the channel to the bottom of segment I (ft), e.g. 0.0
(pg. 246)	TS(I)	Slope of segment directly above TX(I), e.g. 0.024

4.24. Initial Pond Inputs

NOTE: Skip cards 16 and 17 if FLGSEQ is 1, 3 or 4 on card 4.

Card 16. CTL, PAC

(pg. 252)	CTL	1 for pipe outlet control as typical of impoundment type terraces 3 when the orifice coefficient (C, card 17) is read in
	PAC	1 for program to calculate coefficients for pond surface area-depth relationship from user supplied parameters for impoundment basin slopes. 2 for user supplied coefficients SA = $FS(Y^B)$, where SA = surface area (ft^2), Y = depth (ft)

Card 17. DATPO, INTAKE, FRONT, DRAW, SIDE, FS, B, DIAO, C

(pg. 252)	DATPO	Total drainage area above the pond (acres), e.g. 3.2
(pg. 253)	INTAKE	Soil water intake rate within the pond, in/hr, e.g. 0.2
	FRONT	Embankment front slope, e.g. 0.2

	DRAW	Slope along channel draining into pond, e.g. 0.024
	SIDE	Side slope of land within pond area toward valley draw, e.g. 0.01
(pg. 252)	FS	Depth relationship, e.g. 9500.0 (value required if PAC, card 16, is 2).
(pg. 252)	B	Depth relationship, e.g. 1.73 (value required if PAC, card 16, is 2).
(pg. 253)	DIAO	Diameter of pipe orifice (in), e.g. 3.0
(pg. 253)	C	Orifice coefficient, e.g. 3000.0 (value required if CTL, card 16, is 3).

4.25 Updateable General Parameter Inputs

The updateable parameter inputs are for the user to instruct the program of changes that are occuring in the field. The influence of the management practices on the delivery of sediment is shown by the updateable parameters. For illustration, crop rotation requires updateable parameters to be modified to reflect changes in cropping and tillage operations from year to year of the rotation. Corn, wheat, and soybean rotation would require changes in planting dates, tillage dates, soil loss ratios, Manning's n and possibly other parameters. In addition, the user must instruct the program of all the changes that occur within one year due to seedbed preparation and planting, cultivation, harvesting, and fall preparation, etc.

The remaining inputs to the Erosion program are undateable. The program checks the dates (SDATE, card 1) from the hydrology pass file against the parameters control date (CDATE, card 18). If the control date is less than the date of the storm, the program reads in a new set of the updateable parameters. If the program reads a blank in place of the control date (CDATE, card 18) the program stops executing. The execution sequence flag (FLGSEQ, card 4) is used to determine whether or not cards in this section are read as in the initial inputs section. There are no updateable Pond parameters. The Overland flow parameters are on cards 19 through 22, and the channel parameters are on cards 23 through 29.

Card 18. PDATE, CDATE (If blank, the program stops executing)

PDATE — First date that the following erosion parameters are valid (Julian), e.g. 73000

The program doesn't read in the value for PDATE. PDATE is only used as an aid in putting together the data file.

CDATE — Last date that the following erosion parameters are valid (Julian), e.g. 73105

NOTE: A card 18. should always be the first card in a set of updateable parameters. A blank card terminates the program execution.

4.251 Updateable Overland Flow Inputs

Cards 19 and 23 must be inlcuded, depending on the execution sequence (FLGSEQ, card 4), every time the updateable parameters are repeated. Cards 20-22 and 24-29 are included only if indicated on cards 19 and 23.

Card 19. NC, NP, NM

NC — Number of slope segments differentiated by changes in cropping management factor, or soil loss ratios, Appendix 2, Table 2-7, 2-8, 2-9, 2-10, and 2-11, e.g. 1

NP — Number of slope segments differentiated by changes in contouring factor, e.g. 1

NM — Number of slope segments differentiated by changes in Manning's n, e.g. 1

On the initial pass through the program, each of the "N"'s should be at least 1 in order to read initial values for the parameters. In subsequent passes, a blank "N" indicates no change in the corresponding parameter from the previous update. To skip reading a parameter, for example Manning's n, read in a blank NM. If no new overland flow parameters are to be read, card 19 should be left blank. Input cards for a parameter should not be included in the data file when it's "N" on card 19 is left blank.

Card 20. XCIN(I), CIN(I), . . . for I=1 to NC (card 19)

XCIN(I) — Relative horizontal distance from top of slope to the bottom of segment I, e.g. 1.0

(pg. 230) CIN(I) — Cropping management factor or soil loss ratio for slope segment just above XCIN(I), e.g. 0.26, Appendix 2, Tables 2-7, 2-8, 2-9, 2-10, and 2-11.

Card 21. XPIN(I), PIN(I), . . . for I = 1 to NP (card 19)

XPIN(I) — Relative horizontal distance from top of slope to the bottom of segment I, e.g. 1.0

(pg. 239) PIN(I) — Contouring factor for slope segment just above XPIN(I), e.g. 1.0, Appendix 2, Table 2-12.

Card 22. XMIN(I), MIN(I), . . . for I=1 to NM (card 19)

XMIN(I) — Relative horizontal distance from top of slope to the bottom of segment I, e.g. 1.0

MIN(I) — Manning's "n" value for slope segment just above XMIN(I), e.g. 0.03, Appendix 2, Table 2-2. pg 72

4.252 Updateable Channel Inputs

Card 23 NN, NCR, NCV, NDN, NDS, NW

NOTE: See example in Appendix 2, Table 2-15

(pg. 246)

NN Number of channel segments differentiated by changes in Manning's "n" e.g. 1

NCR Number of channel segments differentiated by changes in critical shear stress, e.g. 1

NCV Number of channel segments differentiated by changes in shear stress for cover, e.g. 1

NDN Number of channel segments differentiated by changes in depth from channel middle to the nonerodible layer, e.g. 1

NDS Number of channel segments differentiated by changes in depth from the channel side to the nonerodible layer, e.g. 1

NW Number of channel segments differentiated by changes in width, e.g. 1

On the initial pass through the program, each of the "N"'s should be at least 1 in order to read initial values for the parameters. In subsequent passes, a blank "N" indicates no change in the corresponding parameter from the previous update. To skip reading a parameter, for example channel width, read in a blank NW. If no new channel parameters are to be read, card 23 should be left blank. Input cards for a parameter should not be included in the data file when it's "N" is left blank.

Card 24. XN(I), TN(I), . . . for I-1 to NN (card 23)

XN(I) Distance from the lower end of the channel to the bottom of segment I (ft), e.g. 0.0

(pg. 247)

TN(I) Manning's "n" of channel directly above XN(I), e.g. 0.065 Appendix 2, Table 2-5

page 25 (Do not use value less than Manning's n value used on card 5)

Card 25. XCR(I), TCR(I), . . . for I=1 to NCR (card 23)

XCR(I) Distance from the lower end of the channel to the bottom of segment I (ft), e.g. 0.0

(pg. 247)

TCR(I) Critical shear stress of channel directly above XCR(I), (lbs/ft^2), e.g. 0.40, Appendix 2, Table 2-13.

Card 26. XCV(I), TCV(I), . . . for I=1 to NCV (card 23)

XCV(I) Distance from the lower end of the channel to the bottom of segment I (ft), e.g. 0.0

(pg. 250)

TCV(I) Shear stress for cover stability for channel directly above XCV(I), (lbs/ft^2), e.g. 100.0, Appendix 2, Table 2-14.

Card 27 XDN(I), TDN(I), for I=1 to NDN (card 23)

XDN(I) Distance from the lower end of the channel to the bottom of segment I (ft), e.g. 0.0

(pg. 250) TDN(I) Depth to the nonerodible layer in the middle of channel directly above XDN(I) (ft), e.g. 0.33

Card 28. XDS(I), TDS(I), . . . for I=1 to NDS (card 23)

XDS(I) Distance from the lower end of the channel to the bottom of segment I (ft), e.g. 0.0

(pg. 251) TDS(I) Depth to the nonerodible layer along the side of channel directly above XDS(I) (ft.), e.g. 0.33

Card 29. XW(I), TW(I), . . . for I=1 to NW (card 23)

XW(I) Distance from the lower end of the channel to the bottom of segment I (ft), e.g. 0.0

(pg. 251) TW(I) Width of channel directly above XW(I) (ft), e.g. 10.0

If the channel shape flag (FLAGC, card 12) is a 1 or 3, enter the value for TW that most closely approximates the channel shape.

A sample partial data file for the erosion parameters follows. It will help demonstrate the file structure.

Cards 23-29 must be read in each time you consider another channel segment

EROSION PARAMETER DATA

CARD NO										
1	EROSION PARAMETERS - GEORGIA PIEDMONT									
2	MANAGEMENT PRACTICE ONE									
3	CONTINUOUS CORN - CONVENTIONAL TILLAGE									
4	73000	0	1	0	3					
5	0.000	0.000	0.000	0.000	0.000	0.000				
6	0.140	0.200	0.660	0.010	20.000	4.000	0.0501000.000			
9	3.200	206.000	0.027	0.020	0.038	0.024	98.000	3.500	156.000	0.000
10	1									
11	1.000	0.230								
12	5	1	1	4	1					
13	20.000	10.000	0.030	0.002	2.410	2.250	0.000			
14	371.000	3.200	0.200	20.000						
15	0.000	0.024	69.000	0.018	154.000	0.014	269.000	0.032	325.000	0.021
18		73105								
19	1	1	1							
20	1.000	0.260								
21	1.000	1.000								
22	1.000	0.030								
23	1	1	1	1	1	1				
24	0.000	0.065								
25	0.000	0.400								
26	0.000	100.000								
27	0.000	0.330								
28	0.000	0.330								
29	0.000	10.000								
18		73121								
19	1	0	1							
20	1.000	0.400								
22	1.000	0.030								
23	1	1	0	1	1	0				
24	0.000	0.040								
25	0.000	0.150								
27	0.000	0.330								
28	0.000	0.330								

CHAPTER 5 - INTRODUCTION

The chemistry component contains models that predict the loss of nutrients and pesticides from the watershed on a storm by storm basis. There are actually two subcomponents that are run independently, "nutrients" and "pesticides". The program is told which subcomponent to run by the coding of the input data. Each subcomponent needs two input files to run. "Nutrients" needs the pass file created by the erosion program plus a file of nutrient parameters. "Pesticides" requires the same erosion pass file as "nutrients" plus a pesticide parameter file. Each subcomponent produces one output file. No pass files are created by the chemistry component.

5.1 Preparation of Input Data Files

The "nutrient" subcomponent has two options of plant uptake of nitrogen. Option two should be used. Other nitrogen functions considered by the model include mineralization, denitrification, nitrogen in runoff, nitrogen in sediment, nitrogen leaching, fertilizer applications, and nitrogen in rainfall. Phosphorus is considered by fertilizer applications, and phosphorus losses in sediment and runoff.

The pesticide subcomponent considers multiple pesticide applications to either soil surface or plant foliage and predicts on a storm by storm basis the movement of the pesticide. Decay rates are used to degrade the pesticide between storms and soil residues can be input initially to account for applications in previous years. The model deals with the surface active layer which is assumed to be the top 1 cm (0.4 inches). It is from this layer that the pesticides are either extracted into runoff, adsorbed by soil particles or leached into the root zone.

The chemistry component uses the metric system for its input parameter files, both nutrients and pesticides. This is because most chemical analyses use this system of units. The following list of conversions should enable the user to take field obtained data and convert it to metric units for the program.

Conversion Table

Units	Multiply by	=	Units
lb	0.45	=	kg
kg	2.2	=	lbs
ac	0.4	=	ha
ha	2.47	=	ac
in	25.4	=	mm
in	2.54	=	cm
lb/ac	1.12	=	kg/ha

5.2 Glossary of Nutrient Model Parameters

Table 5.1 --Nutrient model parameters

Parameter	Definition	Source of estimate	Quality of estimate
SOILN	Soil nitrogen	Soil test data; lab analysis; literature.	±40% ±20% ±100% Good for sampled soil series.
SOILP	Soil phosphorus	Soil test data; lab analysis; literature.	±40% ±20% ±100% Dependent upon sampling scheme for unsurveyed soils.
EXKN	Extraction coefficient for nitrogen	Model manual.	±100% Do.
EXKP	Extraction coefficient for phosphorus.	Model manual. data; literature	±100% ±300% Do.
AN	Enrichment coefficient for nitrogen.	Model manual data; literature.	±30% ±300% DO.
BN	Enrichment exponent for nitrogen.	Model manual data; literature.	±30% ±300% Do.
AP	Enrichment coefficient for phosphorus.	Model manual data; literature	±30% ±300% Do.
BP	Enrichment exponent for phosphorus.	Model manual data; literature.	±30% ±300% Do.
FC	Field capacity	Soil survey data; Appendix 1, Table 1-3.	±30% ±15% Excellent for point samples; fair to poor for variability in space.
SOLPOR	Porosity	Soil survey data; Appendix 1, Table 1-3.	±30% ±15% Do.
POTM	Potential mineralization for nitrogen.	Appendix 3, Table 3-2; literature.	±20% ±100% Do.
RCN	Concentration of nitrogen in rainfall.	Model manual; literature.	±10% ±100% Do.
RZMAX	Maximum depth of root zone.	Field study; soil survey.	±20% ±100% Good for cultivated crops; poor for weeds, rangelands.
DOM	Date of miduptake	Local information; general information. Appendix 3, Table 3-4	±15% ±30% Generally not available on a local basis.
SD	Standard deviation of uptake.	Local information; general information. Appendix 3, Table 3-4	±15% ±30% Do.
PU	Potential nitrogen uptake.	Local information; general information. Appendix 3, Table 3-4.	±15% ±30% Do.
YP	Yield potential	Local information; general information. Appendix 3, Table 3-1.	±15% ±30% Occasionally available locally.
C_1; C2; C3; C4	Plant nitrogen uptake coefficients.	Manual Appendix 3, Table 3-3.	Good for crops measured.

5.21. Initial General Nutrient Parameter Inputs

Card 1-3. TITLE()

TITLE	Three lines of 80 characters each for alphanumeric information to be printed at the beginning of the output. format (20A4)

Card 4. BDATE, FLGOUT, FLGIN, FLGPST, FLGNUT

BDATE	The beginning date for simulation. It must be less than the first storm date (SDATE). (Julian date), e.g. 73138 Appendix 1, Table 1-1.
FLGOUT	0 for annual summary output 1 for annual and monthly summary output 2 for individual storm and all summary output CAUTION: FLGOUT = 2, generates a large volume of output
FLGIN	0 if the Storm Hydrology input is in English units and will need to be converted to metric 1 if the values are already in metric units Normally set at zero.
FLGPST	0 if there will be no Pesticide simulation 1 if there will be Pesticide simulation
FLGNUT	0 if there will be no Plant Nutrient simulation 1 if there will be Plant Nutrient simulation

Card 5. SOLPOR, FC, OM

SOLPOR	Soil porosity (in/in), e.g. 0.41, Appendix 1, Table 1-3. (These values should be the same as used in Hydrology component)
FC	Field capacity (in/in), e.g. 0.32, Appendix 1, Table 1-3.
OM	Organic matter available for denitrification (% of soil mass), e.g. 0.65, Soil Series Sheet.

5.22. Initial Plant Nutrient Inputs

Card 7. OPT

(pg. 295)

OPT	1 for option one nitrogen uptake 2 for option two nitrogen uptake (Normally option 2 is used)

Card 8. SOLN, SOLP, NO3, SOILN, SOILP, EXKN, EXKP, AN, BN, AP

NOTE: (1) lb/ac X 1.12 = Kg/ha
(2) use the e.g. values unless soil test data is available.

(pg. 296)	SOLN	Soluble nitrogen (kg/ha), e.g. 0.2
(pg. 296)	SOLP	Soluble phosphorous (kg/ha), e.g. 0.2
(pg. 296)	NO3	Nitrate (kg/ha), e.g. 20.0
(pg. 296)	SOILN	Soil nitrogen (kg/kg), e.g. 0.00035
(pg. 296)	SOILP	Soil phosphorous (kg/kg), e.g. 0.00018
(pg. 296)	EXKN	Extraction coefficient for nitrogen, e.g. 0.0576 Suggest using 0.15 if data not available
(pg. 296)	EXKP	Extraction coefficient for phosphorous, e.g. 0.07 Suggest using 0.15 if data not available
(pg. 296)	AN	Enrichment coefficient for nitrogen, e.g. 16.8 Suggest using 7.4 if data not available
(pg. 296)	BN	Enrichment exponent for nitrogen, e.g. -0.16 Suggest using -0.2 if data not available
(pg. 296)	AP	Enrichment coefficient for phosphorous, e.g. 11.2 Suggest using 7.4 if data not available

Card 9. BP, RCN

NOTE: (1) lb/ac X 1.12 = Kg/ha
(2) use the e.g. values unless soil test data is available.

(pg. 296)	BP	Enrichment exponenet for phosphorous, e.g. -0.146 Suggest using -0.2 if data not available
(pg. 296 or pg. 72)	RCN	Concentration of nitrogen in rainfall (mg/l or ppm), e.g. 1.0

5.23. Updateable General Nutrient Parameter Inputs

The rest of the input to the Chemicals program is updateable. The program checks the dates (SDATE, card 1) from the Storm/Hydrology/Erosion file against the parameters control date (CDATE, card 10). If the control date is less than the date of the storm, the program reads in a new set of the updateable parameters. If the program reads a blank in place of the control date (CDATE, card 10) the program stops executing.

Card 10 PDATE, CDATE

PDATE First date that the following updateable chemical parameters are valid (Julian), e.g. 73138

The program doesn't read in a value for PDATE. PDATE is only used as an aid in putting together the data file.

CDATE Last date that the following updateable chemical parameters are valid, for example, one day before a change in the plant nutrients parameters (Julian), e.g. 73305

NOTE: A card 10 should always be the first card in a new set of updateable parameters.

5.24. Updateable Plant Nutrient Inputs

Card 15. NF, DEMERG, DHRVST

NF	Number of fertilizer applications, e.g. 2
DEMERG	Date of plant emergence (Julian date, no year), e.g. 141
DHRVST	Date of plant harvesting (Julian date, no year), e.g. 305

When no new plant nutrient values are to be read, Card 15 should be left blank. The program will then skip reading the remaining Plant Nutrient parameters.

5.24.1 For Option One Nitrogen Uptake

Card 16. RZMAX, YP, DMY, POTM, AWU, PWU

(pg. 78)	RZMAX	Maximum depth of the root zone (mm), e.g. 450.0 Use Hydrology root zone depth, RD; RZMAX = RD X 25.4 mm/in
(pg. 73)	YP	Potential yield (kg/ha), e.g. 5700.0, Appendix 3, Table 3-1.
(pg. 297)	DMY	Dry matter yield ratio, use 2.5
(pg. 297)	POTM	Potential mineralizable nitrogen (kg/ha), e.g. 47.0 Appendix 3, Table 3-2 and soil series sheet
(pg. 298)	AWU	Actual water use (mm), e.g. 570.0 Values are obtained from the hydrology component annual summary output.
(pg. 298)	PWU	Potential water use (mm), e.g. 780.0 Values are obtained from the hydrology component annual summary output.

Card 17. C1, C2, C3, C4
See Table 3-3, Appendix 3

(pg. 298)	C1,C3	Cubic coefficients, e.g. 0.0209, 0.0128
(pg. 298)	C2,C4	Cubic exponents, e.g. -0.157, -0.415

5.24.2 For Option Two Nitrogen Uptake

Card 16. RZMAX, YP, DMY, POTM, DOM, SD, PU

(pg. 78)	RZMAX	Maximum depth of the root zone (mm), e.g. 450.0 Use hydrology root zone depth, RD; RZMAX = RD X 25.4 mm/in
(pg. 73)	YP	Potential yield (kg/ha), e.g. 5700.0, Appendix 3, Table 3-1
(pg. 297)	DMY	Dry matter yield ratio, use 2.5 Corn " 3.7 Wheat " 4.2 Soybeans " 6.5 Cotton

(pg. 297)	POTM	Potential mineralizable nitrogen (kg/ha), e.g. 47.0 Appendix 3, Table 3-2 and soil series sheet
(pg. 503)	DOM	Date of mid point in nitrogen uptake cycle (days), e.g. 73.0, Appendix 3, Table 3-4.
(pg. 503)	SD	Standard deviation of DOM (days), e.g. 30.0 Appendix 3, Table 3-4.
(pg. 503)	PU	Potential nitrogen uptake (kg/ha), e.g. 250.0 Appendix 3, Table 3-4.

5.24.3 Both Options Continue

Card 18. DF(1)

DF	Date of fertilizer application (Julian date), e.g. 73131

Card 19. FN(1), FP(1), FA(1)

FN	Nitrogen applied (kg/ha), e.g. 28.0
FP	Phosphorus applied (Kg/ha), e.g. 28.0
FA	Surface fraction of application, e.g. 0.1 Ratio of 1 cm to depth of incorporation.

Cards 18 and 19 are repeated for each application of fertilizer (NF, card 15). A maximum of 20 applications can be read in one update.

A sample data file for the nutrient parameters for the plant nutrients model follows. It will help demonstrate the file structure.

CHEMISTRY PARAMETER DATA

```
CARD
 NO
----  ------------------------------------------------------------------------------
  1                          NUTRIENTS PARAMETERS - GEORGIA PIEDMONT
  2                                  MANAGEMENT PRACTICE ONE
  3                           CONTINUOUS CORN - CONVENTIONAL TILLAGE
  4        73138       1       0       0       1
  5        0.410   0.320   0.650
  7            2
  8        0.200   0.200  20.000 0.00035 0.00018 0.05760 0.07000 16.8000 -0.160 11.2000
  9       -0.146   0.800
 10              73305
 15            2     141     305
 16      450.0005700.000   2.500  47.000  73.000  30.000 250.000
 18        73131
 19        28.000  28.000   0.100
 18        73174
 19       112.000   0.000   1.000
 10              74305
 15            2     129     305
 16      450.0005700.000   2.500  47.000  73.000  30.000 250.000
 18        74119
 19        28.000  28.000   0.100
 18        74162
 19       112.000   0.000   1.000
 10              75305
 15            2     151     305
 16      450.0005700.000   2.500  47.000  73.000  30.000 250.000
 18        75141
 19        28.000  28.000   0.100
 18        75176
 19       112.000   0.000   1.000
 10              75365
 15            0     151     305
 16      450.0005700.000   2.500  47.000  73.000  30.000 250.000
 10                    0
```

5.3. Glossary of Pesticide Model Parameter

Parameter	Definition	Source of estimate	Quality of estimate[1/]
APRATE	Pesticide application rate.	Recommendations on label, farm records,	Good, but may vary depending on application equipment and operator care.
DEPINC	Depth of pesticide incorporation.	Application recommendation, experience.	Good, but may vary depending on soil conditions.
EFFINC	Efficiency factor for incorporation.	Measurement, experience.	Fair to good, depending on soil conditions.
FOLFRC	Fraction on foliage	Appendix 4, Table 4-1, experience, observations.	Fair to good, depending on source of estimate.
SOLFRC	Fraction on soil	Model manual, experience, observations.	Fair to good, depending on source of estimate.
FOLRES	Initial foliar residue	Experience, measurement.	Unknown, depends on source of estimate.
SOLRES	Initial soil residue	Measurement, inferred from past management pesticide persistence.	Good if measured; poor if inferred.
WSHFRC	Fraction of foliar pesticide washed off.	Appendix 4, Table 4-2 literature.	Good for limited number of pesticides; fair to unknown for others.
WSHTHR	Rainfall threshold for washoff.	Judgment based on canopy, Appendix 4, Table 4-2.	Probably fair, subjective.
SOLH2O	Pesticide solubility in water.	Handbooks, Appendix 4, Tables 4-3, 4-4.	Good to excellent for most pesticides.
HAFLIF	Foliar pesticide half-life.	Appendix 4, Tables 4-5 & 4-6, literature, measurement.	Fair to good for limited pesticides, but is site- and condition-specific.
DECAY	Dissipation rate from soil surface.(listed in tables as k_s)	Appendix 4, Tables 4-7, 4-8, & 4-9, literature, measurement	Fair to good, but site- and condition-specific, estimates from bulk soil. Measurements often underestimate.
EXTRCT	Extraction ratio, ratio of soil:water in mixing zone.	Model manual	Fair based on model performance, but subjective.
KD	Distribution coefficient.	Model manual, literature, measurement. Appendix 4, Tables 4-10, 4-11, 4-12, & 4-13.	Fair to good, but laboratory value may poorly describe field behavior.

1/ Excellent - known to be within few percent; Good - errors of 50% possible, Fair - error by factor of 2 possible; Poor - error by factor in excess of 2 possible.

5.31. Initial General Pesticide Parameter Inputs

Card 1-3 TITLE()

TITLE — Three lines of 80 characters each for alphanumeric information to be printed at the beginning of the output. format (20A4)

Card 4. BDATE, FLGOUT, FLGIN, FLGPST, FLGNUT

BDATE — The beginning date for simulation. It must be less than the first storm date (SDATE). (Julian date), e.g. 73138 Appendix 1, Table 1-1

FLGOUT — 0 for annual summary output
1 for annual and monthly summary output
2 for individual storm and all summary output
CAUTION: FLGOUT = 2, generates a large amount of output

FLGIN — 0 if the Storm Hydorlogy input is in English units and will need to be converted to metric
1 if the values are already in metric units
Normally set at zero.

FLGPST — 0 if there will be no Pesticide simulation
1 if there will be Pesticide simulation

FLGNUT — 0 if there will be no Plant Nutrient simulation
1 if there will be Plant Nutrient simulation

Card 5. SOLPOR, FC, OM

SOLPOR — Soil porosity (in/in), e.g. 0.41, Appendix 1, Table 1-3 (These values should be the same as used in hydrology component)

FC — Field capacity (in/in), e.g. 0.32, Appendix 1, Table 1-3

OM — Organic matter (% of soil mass), e.g. 0.65, soil series sheet

Note % OM--This is the only place OM is a %

5.32. Initial Pesticide Inputs

Card 6. NPEST, PBDATE, PEDATE

NPEST — Number of pesticides, e.g. 2, max of 10
If blank, the pesticides model will not run.

PBDATE — Date the model begins to consider pesticides (Julian date), e.g. 74120, Appendix 1, Table 1-1

PEDATE — Date the model stops considering pesticides (Julian date), e.g. 75365, Appendix 1, Table 1-1

$$\frac{\frac{1}{3}\pi}{\frac{5}{6}}$$

5.33. Updateable General Pesticide Parameter Inputs

The rest of the input to the Chemicals program in updateable. The program checks the dates (SDATE, card 1) from the Storm/Hydrology/Erosion file against the parameters control date (CDATE, card 10). If the control date is less than the date of the storm, the program reads in a new set of the updateable parameters. If the program reads a blank in place of the control date (CDATE, card 10) the program stops executing.

Card 10 PDATE, CDATE

PDATE — First date that the following chemical parameters are valid (Julian), e.g. 73138

The program doesn't read in a value for PDATE. PDATE is only used as an aid in putting togther the data file.

CDATE — Last date that the following chemical parameters are valid, for example one day before the next pesticide application. (Julian), e.g. 73305

Note: A card 10. should always be the first card in a new set of updateable parameters.

5.34. Updateable Pesticide Inputs

Card 11. APDATE

APDATE — Date the pesticide is applied (julian date), e.g. 73121 if blank, cards 12-14 are not read

card 12. PSTNAM()

PSTNAM — The pesticide name, up to 24 characters, format (6A4), e.g. ATRAZINE (col. 1-24)

Card 13. APRATE, DEPINC, EFFINC, FOLFRC, SOLFRC, FOLRES, SOLRES, WSHFRC, WSHTHR

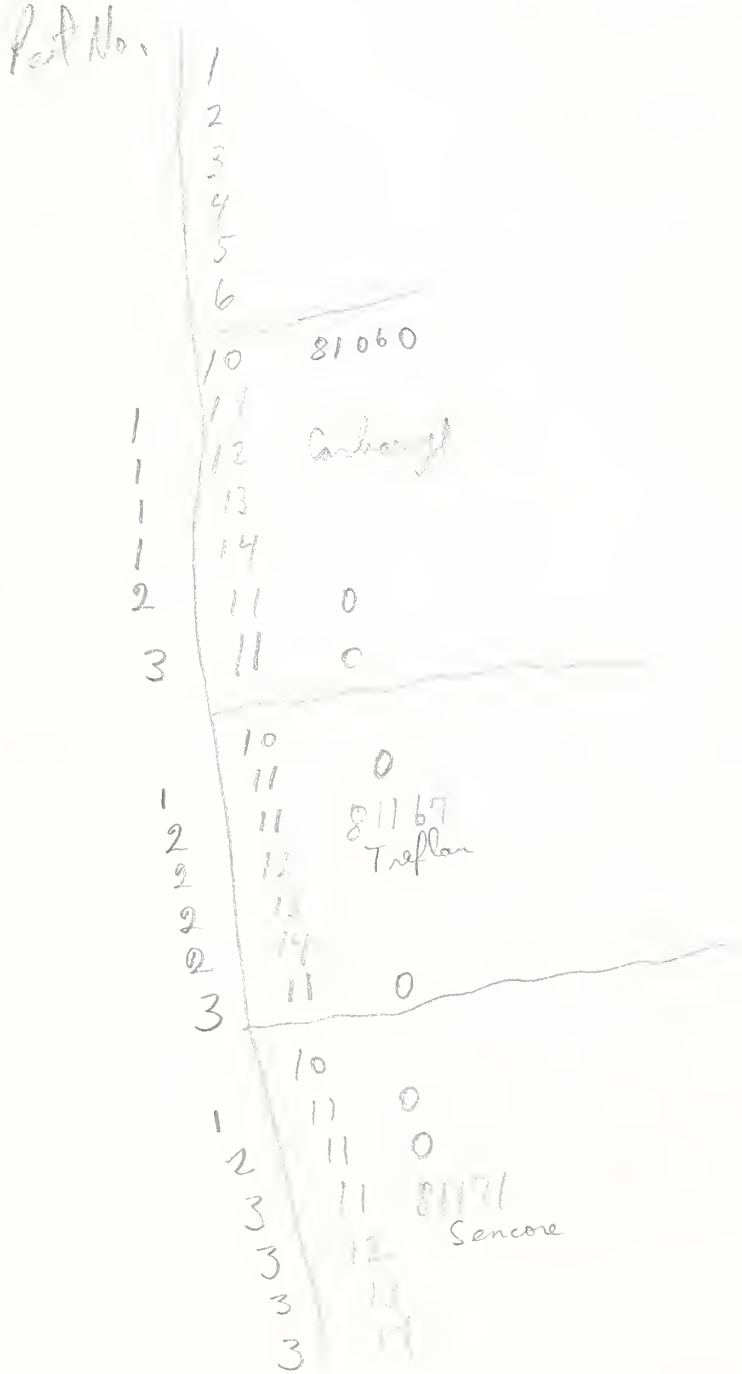
(pg. 321) APRATE — Rate of application (kg/ha), e.g. 3.36
APRATE = lb/ac X 1.12 = _____ kg/ha

(pg. 321) DEPINC — Depth of incorporation (cm), e.g. 1.0
DEPINC = Depth(in) X 2.54 = _____ cm

(pg. 321) EFFINC — Efficiency of incorporation, e.g. 1.0

(pg. 321) FOLFRC — Fraction of pesticide applied to the foliage, e.g. 0.0
Appendix 4, Table 4-1

(pg. 321) SOLFRC — Fraction applied to the soil, e.g. 1.0


Part No.
1
2
3
4
5
6
10
81060
11
12
13
14
11
0
11
0
10
11
0
11
81167
Treflan
12
13
14
11
0
10
11
0
11
0
11
81171
Sencore
12
13
14

(pg. 322)	FOLRES	Amount of pesticide residue on the foliage prior to this application (ug/g or ppm), e.g. 0.0 For annual simulations, use zero (0.0)
(pg. 322)	SOLRES	Amount on the soil prior to this application (ug/g or ppm), e.g. 0.0
(pg. 322)	WSHFRC	Fraction on the foliage available for rainfall washoff, e.g. 0.0, Appendix 4, Table 4-2
(pg. 322)	WSHTHR	Rainfall threshold for foliage washoff (cm), e.g. 0.0 Appendix 4, Table 4-2 WSHTHR = Rainfall(in) X 2.54 = _____cm

Card 14. SOLH2O, HAFLIF, EXTRCT, DECAY, KD

(pgs. 311-312)	SOLH2O	Water solubility (ppm), e.g. 33.0 Appendix 4, Tables 4-3 and 4-4
(pgs. 599-602)	HAFLIF	Foliar residue half life (days), e.g. 0.0 Appendix 4, Tables 4-5 and 4-6
(pg. 323)	EXTRCT	Extraction ratio, use 0.1
(pg. 323 563-574)	DECAY	Decay constant e.g. 0.10, k_s value, Appendix 4 Tables 4-7, 4-8, and 4-9
(pg. 324 611-613)	KD	KD, e.g. 2.0, k_d value, Appendix 4, Tables 4-10, 4-11, 4-12, and 4-13

Cards 11-14 are repeated for each pesticide (NPEST, card 6). If the application date (APDATE, card 11) is blank then cards 12-14 are omitted for that pesticide and the old values, including APDATE, are retained. This is useful when one of the pesticides is to be reapplied but others are not. If more than one pesticide is applied and the pesticides are applied on different dates, blank cards must be inserted at the appropriate places in the file for each pesticide not being applied with this update. The following example is given for clarification.

Assume 3 pesticides (NPEST, card 6) are applied with the following application dates:

```
Atrazine  - 3/20/74  (74079), 3/27/75  (75086)
2,4-D     - 4/15/74  (74105), 4/12/75  (75102)
Parathion - 6/13/74  (74164), 7/05/74  (74186)
            6/20/75  (75171), 7/21/75  (75202)
```

The following cards 10-14 would be used:

```
Card 10:  74000   74104
Card 11:  74079
Card 12:  Atrazine
Card 13 and 14:  appropriate data
2 blank card 11's for 2,4-D and Parathion
Card 10:  74105   74163
1 blank card 11 for Atrazine
```

```
Card 11:   74105
Card 12:  2,4-D
Card 13 and 14:  appropriate data
1 blank card 11 for Parathion
Card 10:   74164   74185
2 blank card 11's for Atrazine and 2,4-D
Card 11:   74164
Card 12:   Parathion
Card 13 and 14: appropriate data
Card 10:   74186   75085
2 blank card 11's for Atrazine and 2,4-D
Card 11:   74186
Card 12:  Parathion
Card 13 and 14: appropriate data
Card 10:   75086   75101
Card 11:   75086
Card 12:  Atrazine
Card 13 and 14: appropriate data
2 blank card 11's for 2,4-D and Parathion
etc.....
```

A sample data file for the Control Parameters for pesticides follows. It will help demonstrate the file structure.

Table 5-1.--Example of pesticide model parameter file

```
CARD
 NO
----  ------------------------------------------------------------------------------
  1                        PESTICIDES PARAMETERS - GEORGIA PIEDMONT
  2                                MANAGEMENT PRACTICE ONE
  3                         CONTINUOUS CORN - CONVENTIONAL TILLAGE
  4        73138      0       0       1       0
  5        0.410  0.320   0.650
  6            2  74120   75365
 10               73131
 11        73121
 12      ATRAZINE
 13        3.360  1.000   1.000   1.000   1.000   0.000   0.000   0.000   0.000
 14         33.0    0.0  0.1000  0.1000     2.0
 11            0
 10               74120
 11            0
 11        73132
 12      PARAQUAT
 13        2.049  1.000   1.000   0.000   1.000   0.000   0.000   0.000   0.000
 14     500000.0    0.0  0.1000 0.0070100000.0
 10        74121  74131
 11        74121
 12      ATRAZINE
 13        3.360  1.000   1.000   0.000   1.000   0.000   0.000   0.000   0.000
 14         33.0    0.0  0.1000  0.1000     2.0
 11            0
 10        74132  75120
 11            0
 11        74132
 12      PARAQUAT
 13        2.049  1.000   1.000   0.000   1.000   0.000   0.000   0.000   0.000
 14     500000.0    0.0  0.1000 0.0070100000.0
 10               75131
 11        75121
 12      ATRAZINE
 13        3.360  1.000   1.000   0.000   1.000   0.000   0.000   0.000   0.000
 14         33.0    0.0  0.1000  0.1000     2.0
 11            0
 10               75366
 11            0
 11        75132
 12      PARAQUAT
 13        2.049   1.000   1.000   0.000   1.000   0.000   0.000   0.000   0.000
 14     500000.0     0.0  0.1000 0.0070100000.0
```

APPENDIX 1

HYDROLOGY PARAMETER TABLES

Table 1-1.--Julian Date Calendar - Perpetual

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Day
1	001	032	060	091	121	152	182	213	244	274	305	335	1
2	002	033	061	092	122	153	183	214	245	275	306	336	2
3	003	034	062	093	123	154	184	215	246	276	307	337	3
4	004	035	063	094	124	155	185	216	247	277	308	338	4
5	005	036	064	095	125	156	186	217	248	278	309	339	5
6	006	037	065	096	126	157	187	218	249	279	310	340	6
7	007	038	066	097	127	158	188	219	250	280	311	341	7
8	008	039	067	098	128	159	189	220	251	281	312	342	8
9	009	040	068	099	129	160	190	221	252	282	313	343	9
10	010	041	069	100	130	161	191	222	253	283	314	344	10
11	011	042	070	101	131	162	192	223	254	284	315	345	11
12	012	043	071	102	132	163	193	224	255	285	316	346	12
13	013	044	072	103	133	164	194	225	256	286	317	347	13
14	014	045	073	104	134	165	195	226	257	287	318	348	14
15	015	046	074	105	135	166	196	227	258	288	319	349	15
16	016	047	075	106	136	167	197	228	259	289	320	350	16
17	017	048	076	107	137	168	198	229	260	290	321	351	17
18	018	049	077	108	138	169	199	230	261	291	322	352	18
19	019	050	078	109	139	170	200	231	262	292	323	353	19
20	020	051	079	110	140	171	201	232	263	293	324	354	20
21	021	052	080	111	141	172	202	233	264	294	325	355	21
22	022	053	081	112	142	173	203	234	265	295	326	356	22
23	023	054	082	113	143	174	204	235	266	296	327	357	23
24	024	055	083	114	144	175	205	236	267	297	328	358	24
25	025	056	084	115	145	176	206	237	268	298	329	359	25
26	026	057	085	116	146	177	207	238	269	299	330	360	26
27	027	058	086	117	147	178	208	239	270	300	331	361	27
28	028	059	087	118	148	179	209	240	271	301	332	362	28
29	029		088	119	149	180	210	241	272	302	333	363	29
30	030		089	120	150	181	211	242	273	303	334	364	30
31	031		090		151		212	243		304		365	31

For Leap Year Use Next Table

Table 1-1.--Julian Date Calendar - For Leap Years Only

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Day
1	001	032	061	092	122	153	183	214	245	275	306	336	1
2	002	033	062	093	123	154	184	215	246	276	307	337	2
3	003	034	063	094	124	155	185	216	247	277	308	338	3
4	004	035	064	095	125	156	186	217	248	278	309	339	4
5	005	036	065	096	126	157	187	218	249	279	310	340	5
6	006	037	066	097	127	158	188	219	250	280	311	341	6
7	007	038	067	098	128	159	189	220	251	281	312	342	7
8	008	039	068	099	129	160	190	221	252	282	313	343	8
9	009	040	069	100	130	161	191	222	253	283	314	344	9
10	010	041	070	101	131	162	192	223	254	284	315	345	10
11	011	042	071	102	132	163	193	224	255	285	316	346	11
12	012	043	072	103	133	164	194	225	256	286	317	347	12
13	013	044	073	104	134	165	195	226	257	287	318	348	13
14	014	045	074	105	135	166	196	227	258	288	319	349	14
15	015	046	075	106	136	167	197	228	259	289	320	350	15
16	016	047	076	107	137	168	198	229	260	290	321	351	16
17	017	048	077	108	138	169	199	230	261	291	322	352	17
18	018	049	078	109	139	170	200	231	262	292	323	353	18
19	019	050	079	110	140	171	201	232	263	293	324	354	19
20	020	051	080	111	141	172	202	233	264	294	325	355	20
21	021	052	081	112	142	173	203	234	265	295	326	356	21
22	022	053	082	113	143	174	204	235	266	296	327	357	22
23	023	054	083	114	144	175	205	236	267	297	328	358	23
24	024	055	084	115	145	176	206	237	268	298	329	359	24
25	025	056	085	116	146	177	207	238	269	299	330	360	25
26	026	057	086	117	147	178	208	239	270	300	331	361	26
27	027	058	087	118	148	179	209	240	271	301	332	362	27
28	028	059	088	119	149	180	210	241	272	302	333	363	28
29	029	060	089	120	150	181	211	242	273	303	334	364	29
30	030		090	121	151	182	212	243	274	304	335	365	30
31	031		091		152		213	244		305		366	31

(Use in 1964, 1968, 1972, etc.)

Table 1-2.--Ranges of Effective Saturated Conductivity (*RC) of Soils by Hydrologic Group (Musgrave)

Hydrologic Group	RC (in/hr)
A	0.30 - 0.45
B	0.15 - 0.30
C	0.05 - 0.15
D	0.0 - 0.05

Table 1-3.--Mean Physical Properties of Soils. Franzmier (Lutz)[1/]

Texture	Bulk Density	Volume (in/in) Total Porosity	Field Capacity	Wilting Point	AWC	FUL	CONA
	gm/cm^3		1/3 bar	15 bar			
Coarse sand	1.6	0.40	0.11	0.03	0.08	0.28	3.3
Sand	1.6 (1.50)	0.40 (0.45)	0.16(0.09)	0.03 (0.02)	0.13(0.07)	0.40	3.3
Fine sand	1.5	0.43	0.18	0.03	0.15	0.42	3.3
V. fine sand	1.5	0.43	0.27	0.03	0.25	0.63	3.3
L. coarse sand	1.6	0.40	0.16	0.05	0.11	0.40	3.3
Loamy sand	1.6	0.40	0.19	0.05	0.14	0.48	3.3
Loamy f. sand	1.6	0.40	0.22	0.05	0.18	0.55	3.3
L. v.f. sand	1.6	0.40	0.37	0.05	0.32	0.92	3.3
Coarse s. loam	1.6	0.40	0.19	0.08	0.11	0.48	3.3
Sandy loam	1.6 (1.35)	0.40(0.50)	0.22 (0.15)	0.08 (0.04)	0.14(0.11)	0.55	3.5
F. sandy loam	1.7	0.36	0.27	0.08	0.19	0.75	3.5
V. f. sandy loam	1.6	0.40	0.37	0.08	0.29	0.92	3.5
Loam	1.6	0.40	0.26	0.11	0.15	0.65	4.5
Silt loam	1.5 (1.25)	0.43(0.53)	0.32 (0.22)	0.12 (0.07)	0.20(0.15)	0.74	4.5
Silt	1.4	0.47	0.27	0.03	0.24	0.57	4.0
Sandy clay loam	1.6	0.40	0.30	0.18	0.12	0.75	4.0
Clay loam	1.6 (1.20)	0.40(0.55)	0.35 (0.28)	0.22 (0.10)	0.13(0.18)	0.88	4.0
Silty clay loam	1.4	0.47	0.36	0.20	0.16	0.77	4.0
Sandy clay	1.6	0.40	0.28	0.20	0.13	0.70	3.5
Silty clay	1.5	0.483	0.40	0.30.24	0.14	0.92	3.5
Clay	1.4 (1.15)	0.47(0.60)	0.39 (0.45)	0.28 (0.33)	0.11(0.12)	0.83	3.5

1/ Values in parenthesis represent data from Lutz

Table 1-4.--Runoff curve numbers for hydrologic soil-cover complexes
(Antecedent moisture condition II, and I_a = 0.2 S)

Land use	Cover Treatment or practice	Hydrologic	Hydrologic soil group A	B	C	D
Fallow	Straight row	----	77	86	91	94
Row crops	"	Poor	72	81	88	91
	"	Good	67	78	85	89
	Contoured	Poor	70	79	84	88
	"	Good	65	75	82	86
	"and terraced	Poor	66	74	80	82
	" " "	Good	62	71	78	81
Small grain	Straight row	Poor	65	76	84	88
		Good	63	75	83	87
	Contoured	Poor	63	74	82	85
		Good	61	73	81	84
	"and Terraced	Poor	61	72	79	82
		Good	59	70	78	81
Close-seeded legumes 1/ or rotation meadow	Straight row	Poor	66	77	85	89
	" "	Good	58	72	81	85
	Contoured	Poor	64	75	83	85
	"	Good	55	69	78	83
	"and terraced	Poor	63	73	80	83
	"and terraced	Good	51	67	76	80
Pasture or range		Poor	68	79	86	89
		Fair	49	69	79	84
		Good	39	61	74	80
	Contoured	Poor	47	67	81	88
	"	Fair	25	59	75	83
	"	Good	6	35	70	79
Meadow		Good	30	58	71	78
Woods		Poor	45	66	77	83
		Fair	36	60	73	79
		Good	25	55	70	77
Farmsteads		----	59	74	82	86
Roads (dirt) 2/		----	72	82	87	89
(hard surface) 2/		----	74	84	90	92

1/ Close-drilled or broadcast.
2/ Including right-of-way.

Table 1-5.--Runoff curve numbers for hydrologic soil-cover complexes for conservation tillage and residue management

(Antecedent moisture condition II, and I_a = 0.25)

Cover						
Land use	Treatment or practice	Hydrologic condition	Hydrologic soil group A	B	C	D
Fallow	Straight row					
	Poor residue cover	----	76	85	90	93
	Good residue cover	----	74	83	88	90
Row crops	Straight row					
	Poor residue cover	Poor	71	80	87	90
	Poor residue cover	Good	66	77	84	88
	Good residue cover	Poor	69	78	84	87
	Good residue cover	Good	64	75	82	85
Small grain	Straight row					
	Poor residue cover	Poor	64	75	83	87
	Poor residue cover	Good	62	74	82	86
	Good residue cover	Poor	62	73	81	85
	Good residue cover	Good	60	72	80	84
Row crops or small grain	Contoured or contoured and terraced	Poor or Good	For poor residue cover, use values in Table 1-4. for good residue cover, decrease curve numbers in Table 1-4 by one.			

Poor residue cover--Less than 20% of the surface is covered with residue. (750 #/acre rowcrops and 300#/acre small grain).

Good residue cover--More than 20% of the surface is covered with residue, with normal range being between 20 and 40% surface covered with residue.

NOTE: Percent cover should be estimated at the time of year storms occur.

Table 1-6.--Runoff curve numbers derived from range sites and condition of cover for antecedent moisture condition I.

Range Site	Range condition		
	Poor	Fair	Good
Wetland	95	95	95
Very shallow	95	90	85
Saline subirrigated	90	90	85
Subirrigated	90	90	85
Shale	90	85	80
Dense clay	90	85	80
Alkali clay	90	85	80
Saline upland	90	85	80
Igneous	90	80	75
Shallow clayey	85	80	75
Shallow sandy	80	75	70
Shallow loamy	80	75	70
Shallow igneous	80	75	70
Steep clayey	80	75	70
Clayey	80	75	65
Gravelly loamy	80	75	65
Steep loamy	80	75	65
Overflow	80	70	60
Loamy overflow	80	70	60
Clayey overflow	80	70	60
Coarse upland	80	70	60
Limy upland	80	70	60
Shallow breaks	80	70	60
Stony	80	70	60
Steep stony	80	70	60
Lowland	80	70	60
Saline lowland	80	70	60
Loamy lowland	80	65	55
Loamy	80	65	55
Sandy lowland	75	60	50
Sandy	75	60	50
Gravelly	70	55	45
Sands	70	55	40
Choppy sands	70	55	40

Note: As sites conditions are general, the curve number should be adjusted (interpolated) for each particular site based upon a field investigation.

Table 1-7.--Parameter estimation of the infiltration model[1/] - Hydrology option 2

		GA (in)				RC (in/hr)			
		Hydrologic soil group				Hydrologic soil group			
		A	B	C	D	A	B	C	D
Expected range of values		3-6	7-11	12-17	18-22	0.3-3.0	0.1-1.0	0.05-0.5	0.01-0.2
Mean for estimation		4	9	15	20				
Land use[2/]	Hydrologic condition								
Row crops:									
Straight	Poor					[3/]0.4	0.18	0.06	0.03
	Good					.45	.21	.09	.04
Contoured	Poor					.4	.2	.1	.05
	Good					.5	.25	.12	.07
Fallow	---					.3	.12	.04	.02
Small grains and meadow:									
Straight	Poor					.05	.22	.09	.04
	Good					.6	.43	.12	.07
Contoured	Poor					.05	.25	.1	.07
	Good					.65	.3	.14	.09
Range/pasture:									
Straight	Poor					.5	.2	.08	.04
	Good					.8	.42	.2	.12
Contoured	Poor					.75	.35	.13	.04
	Good					2.0	.7	.24	.12
Meadow	Good					1.2	.46	.23	.13
Woods	Poor					.75	.36	.17	.09
	Good					1.5	.50	.24	.14

1/ Tentative.
2/ SCS presentation of CN for terraced systems is omitted since this affects routing, not condition of soil.
3/ Values given will reproduce CN estimates for a storm of 4.0 in. covering 4-hr duration, with mean value of GA.

Table 1-8.--Mean daily solar radiation (Langley's) and years of record used

States and stations	JAN	YRS	FEB	YRS	MAR	YRS	APR	YRS	MAY	YRS	JUNE	YRS	JULY	YRS	AUG	YRS	SEPT	YRS	OCT	YRS	NOV	YRS	DEC	YRS	ANNUAL
ALASKA																									
Annette-	63	6	115	6	236	7	364	7	437	6	438	6	438	6	341	6	258	7	122	7	59	7	41	7	243
Bethel	38	9	108	10	282	9	444	10	457	10	454	10	376	10	252	10	202	10	115	10	44	9	22	9	233
Fairbanks-	16	25	71	27	213	25	376	28	461	28	504	29	434	28	317	29	180	29	82	30	26	29	6	26	224
ARIZONA																									
Page	300	2	382	3	526	3	618	2	695	2	707	2	680	3	596	3	516	3	402	3	310	3	243	3	498
Phoenix-	301	11	409	11	526	11	638	11	724	11	739	11	658	11	613	11	566	11	449	11	344	11	281	11	520
Tucson	315	5	391	5	540	4	655	5	729	5	699	5	626	6	588	6	570	6	442	6	356	6	305	6	518
ARKANSAS																									
Little Rock-	188	9	260	9	353	10	446	9	523	9	559	9	556	8	518	9	439	7	343	8	244	10	187	10	385
CALIFORNIA																									
Davis-	174	18	257	17	390	18	528	18	625	18	694	18	682	18	612	18	493	18	347	19	222	19	148	19	431
Fresno	184	31	289	31	427	31	552	31	647	31	702	32	682	32	621	31	510	31	376	32	250	31	161	32	450
Inyokern (China Lake)-	306	11	412	11	562	11	683	11	772	11	819	11	772	11	729	10	635	8	467	9	363	11	300	12	568
La Jolla	244	19	302	18	397	19	457	20	506	19	487	21	497	22	464	22	389	22	320	21	277	20	221	20	380
Los angeles WBAS	248	10	331	10	470	10	515	10	572	9	596	9	641	9	581	10	503	10	373	10	289	10	241	10	463
Riverside-	275	8	367	8	478	9	541	9	623	9	680	9	673	9	618	9	535	9	407	9	319	9	270	9	483
Santa Maria-	263	11	346	11	482	11	552	10	635	11	694	11	680	11	613	11	524	11	419	11	313	11	252	11	481
Soda Springs	223	4	316	3	374	4	551	4	615	3	691	4	760	3	681	3	515	3	357	4	248	4	182	3	459
COLORADO																									
Boulder-	201	5	268	4	401	4	460	4	460	4	525	5	520	5	439	5	412	4	310	4	222	4	182	4	367
Grand Junction	227	9	324	9	434	8	546	8	615	9	708	8	676	8	595	8	514	8	373	10	260	10	212	10	456
Grank Lake (Granby)-	212	6	313	7	423	7	512	8	552	8	632	8	600	8	505	7	476	6	361	7	234	6	184	7	417
American University-	158	39	231	39	322	39	398	39	467	39	510	39	496	39	440	38	364	38	278	38	192	39	141	39	333
FLORIDA																									
Apalachicola	298	10	367	10	441	10	535	10	603	9	578	9	529	9	511	9	456	9	413	10	332	10	262	10	444
Belle Isle	297	10	330	10	412	10	463	10	483	10	464	10	488	11	561	10	400	10	366	11	313	11	291	10	397
Gainsville	267	11	343	10	427	12	517	12	579	12	521	10	488	10	483	8	418	9	347	8	300	10	233	10	410
Miami Airport-	349	10	415	9	489	9	540	10	553	10	532	10	532	10	505	10	440	10	384	10	353	10	316	10	451
Tampa-	327	8	391	8	474	8	539	8	596	8	574	9	534	9	494	9	452	9	400	9	356	9	300	9	453
GEORGIA																									
Atlanta-	218	11	290	11	380	11	488	11	533	11	562	11	532	10	508	10	416	10	344	11	368	11	211	11	396
Griffin-	234	9	295	9	385	10	522	11	570	11	577	11	556	11	522	11	435	11	368	11	283	11	201	11	413

Table 1-8.--Mean daily solar radiation (Langley's) and years of record used (continued)

States and stations	JAN	YRS	FEB	YRS	MAR	YRS	APR	YRS	MAY	YRS	JUNE	YRS	JULY	YRS	AUG	YRS	SEPT	YRS	OCT	YRS	NOV	YRS	DEC	YRS	ANNUAL
HAWAII																									
Honolulu	363	4	422	4	516	4	559	5	617	5	615	5	615	5	612	5	573	5	507	5	426	5	371	5	516
Pearl Harbor	359	5	400	4	487	4	529	5	573	5	566	5	598	5	567	5	539	5	466	5	386	5	343	5	484
IDAHO																									
Boise	138	10	236	9	342	9	485	9	585	10	636	9	670	10	576	10	460	10	301	11	182	11	124	11	395
Twin Falls	163	20	240	20	355	20	462	21	552	20	592	18	602	20	540	20	432	19	286	20	176	20	131	19	378
ILLINOIS																									
Chicago	96	19	147	19	227	19	331	19	424	19	458	18	473	19	403	18	313	19	207	20	120	20	76	20	273
Lemont	170	6	242	6	340	6	402	6	506	6	553	6	540	6	498	6	398	5	275	5	165	5	138	5	352
INDIANA																									
Indianapolis	144	10	213	10	316	10	396	10	488	9	543	11	541	10	490	11	405	11	293	11	177	11	132	11	345
IOWA																									
Ames	174	5	253	5	326	5	403	5	480	5	541	5	536	6	460	6	367	6	274	7	167	7	143	7	345
KANSAS																									
Dodge City	255	7	316	7	418	7	528	7	568	7	650	7	642	8	592	9	493	9	380	9	285	10	234	10	447
Manhattan	192	3	264	3	345	3	433	3	527	4	551	4	531	4	526	4	410	4	492	4	227	4	156	4	371
KENTUCKY																									
Lexington	172	9	263	9	357	10	480	10	581	10	628	9	617	10	563	10	494	10	357	9	245	9	174	11	411
LOUISIANA																									
Lake Charles	245	11	306	11	397	11	481	11	555	11	591	11	526	11	511	11	449	11	402	11	300	10	250	10	418
New Orleans	214	14	259	14	335	15	412	16	449	14	443	13	417	15	416	15	383	15	357	13	278	13	198	14	347
Shreveport	232	3	292	3	384	3	446	4	558	4	557	4	578	4	528	4	414	4	354	4	254	4	205	4	400
MAINE																									
Caribou	133	8	231	9	364	8	400	10	476	10	470	10	508	11	448	11	336	11	212	11	111	11	107	9	316
Portland	152	7	235	8	352	7	409	8	514	9	539	9	561	9	488	8	383	7	278	9	157	8	137	9	350
MASSACHUSETTS																									
Blue Hill	153	27	228	27	319	26	389	26	469	27	510	27	502	26	449	27	354	28	266	28	162	28	135	28	328
Boston	129	16	194	17	290	17	350	17	445	16	483	16	486	16	411	16	334	17	235	16	136	16	115	15	301
East Wareham	140	13	218	13	305	12	385	14	452	14	508	14	495	14	436	14	365	13	258	14	163	14	140	13	322
MICHIGAN																									
East Lansing	121	10	210	11	309	11	359	11	483	10	547	11	540	11	466	11	373	11	255	11	136	11	108	11	311
Sault Ste Marie	130	10	225	9	356	10	416	10	523	10	557	11	573	11	472	10	322	10	216	9	105	9	96	9	333
MINNESOTA																									
St Cloud	168	8	260	8	368	8	426	8	496	8	535	8	657	9	486	8	366	8	237	7	146	8	124	8	348
MISSOURI																									
Columbia	173	10	251	10	340	11	434	11	530	11	574	12	574	10	522	10	453	10	322	10	225	10	158	9	380

Table 1-8.--Mean daily solar radiation (Langley's) and years of record used (continued)

States and stations	JAN	YRS	FEB	YRS	MAR	YRS	APR	YRS	MAY	YRS	JUNE	YRS	JULY	YRS	AUG	YRS	SEPT	YRS	OCT	YRS	NOV	YRS	DEC	YRS	ANNUAL
MONTANA																									
Glasgow- - - - - - - -	154	6	258	8	385	7	466	8	568	8	606	8	645	9	531	10	410	10	267	8	154	8	116	7	388
Great Falls- - - - - -	140	8	232	9	366	9	434	8	528	8	583	8	639	9	532	9	407	10	264	10	154	10	112	10	366
Summit - - - - - - - -	122	3	162	2	268	3	414	3	462	3	493	3	560	2	510	2	354	2	216	2	102	2	76	2	312
NEBRASKA																									
Lincoln- - - - - - - -	188	39	259	39	350	39	416	39	494	40	544	38	568	38	484	38	396	38	296	36	199	40	159	39	363
North Omaha- - - - - -	193	3	299	3	365	3	463	3	516	3	546	4	668	4	419	4	410	4	298	4	204	4	170	4	379
NEVADA																									
Ely- - - - - - - - - -	236	7	339	9	468	9	563	9	625	10	712	10	647	11	618	11	518	11	394	10	289	10	218	10	469
Las Vegas- - - - - - -	277	11	384	11	519	11	621	11	702	11	748	10	675	11	627	11	551	11	429	11	318	11	258	11	509
NEW JERSEY																									
Seabrook - - - - - - -	157	8	227	8	318	8	403	8	482	9	527	8	509	8	455	9	385	9	278	7	192	8	140	8	339
NEW MEXICO																									
Albuquerque- - - - - -	303	13	386	13	511	13	618	13	686	13	726	13	683	12	626	13	554	14	438	15	334	15	276	14	512
NEW YORK																									
Ithica - - - - - - - -	116	22	194	21	272	23	334	23	440	24	501	23	515	23	453	23	346	21	231	22	120	23	96	23	302
Central Park - - - - -	130	34	199	34	290	33	369	35	432	35	470	34	459	35	389	35	331	36	242	36	147	36	115	35	298
Sayville - - - - - - -	160	11	249	11	335	10	415	10	494	10	565	10	453	10	462	10	385	10	289	10	186	10	142	11	352
Schenectady- - - - - -	130	8	200	9	273	9	338	9	413	9	448	8	441	8	397	8	299	8	218	8	128	8	104	8	282
Upton- - - - - - - - -	155	8	232	8	339	8	428	8	502	8	573	8	543	7	475	7	391	7	293	6	182	7	143	7	355
NORTH CAROLINA																									
Greensboro - - - - - -	200	7	276	9	354	9	469	9	531	10	564	10	544	10	485	10	406	10	322	10	243	10	197	8	383
Hatteras - - - - - - -	238	10	317	9	426	8	569	9	635	10	652	10	625	10	562	11	471	11	358	11	282	11	214	11	443
NORTH DAKOTA																									
Bismarck - - - - - - -	157	7	250	8	356	6	447	8	550	8	590	9	617	10	516	11	390	11	272	11	161	10	124	10	369
OHIO																									
Cleveland- - - - - - -	125	6	183	6	303	7	286	8	502	8	562	8	562	8	494	8	278	8	289	9	141	9	115	7	335
Columbus - - - - - - -	128	7	200	7	297	7	391	7	471	6	562	4	542	5	477	4	422	4	286	4	176	4	129	5	340
Put-in-Bay - - - - - -	126	10	204	9	302	10	386	11	468	11	544	11	561	10	487	10	382	11	275	11	144	11	109	11	332
OKLAHOMA																									
Oklahoma City- - - - -	251	10	319	10	409	9	494	10	536	10	615	7	610	8	593	8	487	9	377	10	291	9	240	9	436
Stillwater - - - - - -	205	8	289	8	390	9	454	9	504	9	600	10	596	10	545	10	455	11	354	10	269	9	209	8	405
OREGON																									
Astoria- - - - - - - -	90	7	162	8	270	8	375	8	492	8	469	8	539	8	461	7	354	7	209	8	111	8	79	8	301
Corvallis- - - - - - -	89	2	*		287	3	406	3	517	3	570	3	676	4	558	4	397	4	235	4	114	4	80	4	---
Medford- - - - - - - -	116	11	215	11	336	11	482	11	592	11	652	11	698	10	605	11	447	11	279	11	149	11	93	11	389

Table 1-8.--Mean daily solar radiation (Langley's) and years of record used (continued)

States and stations	JAN	YRS	FEB	YRS	MAR	YRS	APR	YRS	MAY	YRS	JUNE	YRS	JULY	YRS	AUG	YRS	SEPT	YRS	OCT	YRS	NOV	YRS	DEC	YRS	ANNUAL
PENNSYLVANIA																									
Pittsburgh	94	6	169	5	216	6	317	6	429	6	491	6	497	7	409	6	339	6	207	5	118	6	77	5	280
State College	133	19	201	19	295	20	380	20	456	20	518	20	511	20	444	20	358	20	256	20	149	20	118	20	318
RHODE ISLAND																									
Newport	155	23	232	22	334	23	405	23	477	23	527	24	513	24	455	24	377	24	271	24	176	24	139	24	338
SOUTH CAROLINA																									
Charleston	252	11	314	11	388	11	512	11	551	11	564	11	520	11	501	11	404	11	338	11	286	11	225	11	404
SOUTH DAKOTA																									
Rapid City	183	11	277	11	400	11	482	11	532	11	585	11	590	11	541	11	435	11	315	10	204	10	158	10	392
TENNESSEE																									
Nashville	149	18	228	19	322	19	432	19	503	18	551	18	530	17	473	17	403	17	308	19	208	18	150	19	355
Oak Ridge	161	11	239	11	331	11	450	11	518	11	551	11	526	11	478	11	416	11	318	11	213	10	163	11	364
TEXAS																									
Brownsville	297	10	341	10	402	10	456	11	564	10	610	9	627	8	568	11	475	11	411	11	296	11	263	10	442
El Paso	333	11	430	11	547	10	654	11	714	11	729	11	666	11	640	10	576	11	460	11	372	11	313	11	536
Ft. Worth	250	11	320	11	427	11	488	11	562	11	651	11	613	11	593	11	503	11	403	11	306	11	245	9	445
Midland	283	7	358	8	476	9	550	8	611	8	617	8	608	7	574	8	522	9	396	9	325	8	275	8	466
San Antonio	279	9	347	9	417	9	445	9	541	9	612	9	639	9	585	9	493	10	398	10	295	10	256	8	442
UTAH																									
Flaming Gorge	238	2	498	2	443	2	522	2	565	2	650	2	599	3	538	3	425	3	352	3	262	3	215	3	426
Salt Lake City	163	8	256	8	354	8	479	8	570	7	621	7	620	6	551	7	446	8	316	8	204	8	146	9	394
VIRGINIA																									
Mt. Weather	172	2	274	2	338	2	414	2	508	2	525	3	510	3	430	3	375	3	281	2	202	2	168	2	350
Friday Harbor	87	8	157	7	274	8	418	8	514	9	578	10	586	10	507	11	351	8	194	10	102	10	75	8	320
WASHINGTON																									
Prosser	117	4	222	4	351	4	521	5	616	4	680	4	707	4	604	4	458	4	274	4	136	4	100	4	399
University of Washington	67	9	126	9	245	10	364	9	445	10	461	10	496	11	435	10	299	8	170	9	93	9	59	9	272
Pullman	121	4	205	2	304	2	462	2	558	4	653	5	699	5	562	4	410	4	245	5	146	5	96	5	372
Seattle-Tacoma	75	9	139	9	265	9	403	9	503	9	511	9	566	9	452	10	324	10	188	10	104	9	64	10	300
WISCONSIN																									
Madison	148	46	220	46	313	45	394	47	466	47	514	47	531	47	452	47	348	47	241	47	145	44	115	46	324
WYOMING																									
Lander	226	8	324	9	452	9	548	11	587	11	678	11	651	11	586	10	472	8	354	9	239	9	196	9	443
Laramie	216	3	295	3	424	3	508	3	554	3	643	3	606	3	536	3	438	3	324	3	229	3	186	4	408
PUERTO RICO																									
San Juan	404	5	481	4	580	4	622	4	519	5	536	6	639	5	549	6	531	6	460	6	411	6	411	6	512

Table 1-9.--Typical leaf area index distributions for crops

Portion of growing season	Leaf area index[1/]							
	Corn	Cotton	Sorghum	Oats	Wheat	Pasture[2/]	Barley	Soybeans
0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
.1	.09	.13	.09	.42	.47	1.84	.44	.15
.2	.19	.28	.19	.84	.90	3.00	.88	.40
.3	.23	1.05	.23	.90	.90	3.00	.90	2.18
.4	.49	2.14	.54	.90	.90	3.00	.90	2.97
.5	1.16	2.96	1.35	.98	.90	3.00	1.58	3.00
.6	2.97	3.00	2.98	2.62	1.62	3.00	3.00	2.96
.7	3.00	2.96	3.00	3.00	3.00	2.70	3.00	2.92
.8	2.72	2.92	2.72	3.00	3.00	1.96	3.00	2.30
.9	1.83	1.78	1.84	3.00	3.00	.96	2.14	1.15
1.0	.00	1.00	1.00	.00	.00	.50	.00	.50

1/ Good production assumed for all crops. LAI should be lowered for poor production.

2/ No grazing assumed. LAI must be lowered if grazed or mowed according to height of plants.

APPENDIX 2

EROSION/SEDIMENT YIELD PARAMETER VALUE TABLES

Table 2-1.--Kinematic viscosity for water over a typical range of temperatures

Temperature (°F)	Kinematic viscosity ($ft^2/s \times 10^5$)
40	1.67
50	1.41
60	1.21
70	1.05
80	0.90
90	0.82
100	0.74

USGS Surface Water Quality Records, use median water temperature

Table 2-2.--Estimates of Manning's "n" for overland flow and soil covers[1/]

Treatment	Manning's "n"	Treatment	Manning's "n"
Cornstalk residue applied to fallow surface:		Crushed stone mulch	
1 ton/acre	0.020	15 tons/acre	0.012
2 tons/acre	.040	60 tons/acre	.023
4 tons/acre	.070	135 tons/acre	.046
		240 tons/acre	.074
		375 tons/acre	0.74
Cornstalk residue disk-harrow incorporated:		Grass	
1 ton/acre	0.012	Sparse	0.015
2 tons/acre	.020	Poor	.023
4 tons/acre	.023	Fair	.032
		Good	.046
		Excellent	.074
		Dense	.150
		Very dense	.400
Wheat straw mulch:		Rough surface depressions	
0.25 ton/acre	0.015	4 to 5 in deep	0.046
0.5 ton/acre	.018	2 to 4 in deep	.023
1 ton/acre	.032	1 to 2 in deep	.014
2 tons/acre	.070	No surface depressions	.010
4 tons/acre	.074		

Small grain (20% to full maturity)	Across slope	Upslope & Downslope
Poor stand	0.018	0.012
Moderate stand	.023	.015
Good stand	.032	.023
Dense	.046	.032

1/ Based on data form Lane and others (5) and Neibling and Foster (7).

Table 2-3.--Bulk and weight densities in areas of concentrated flow

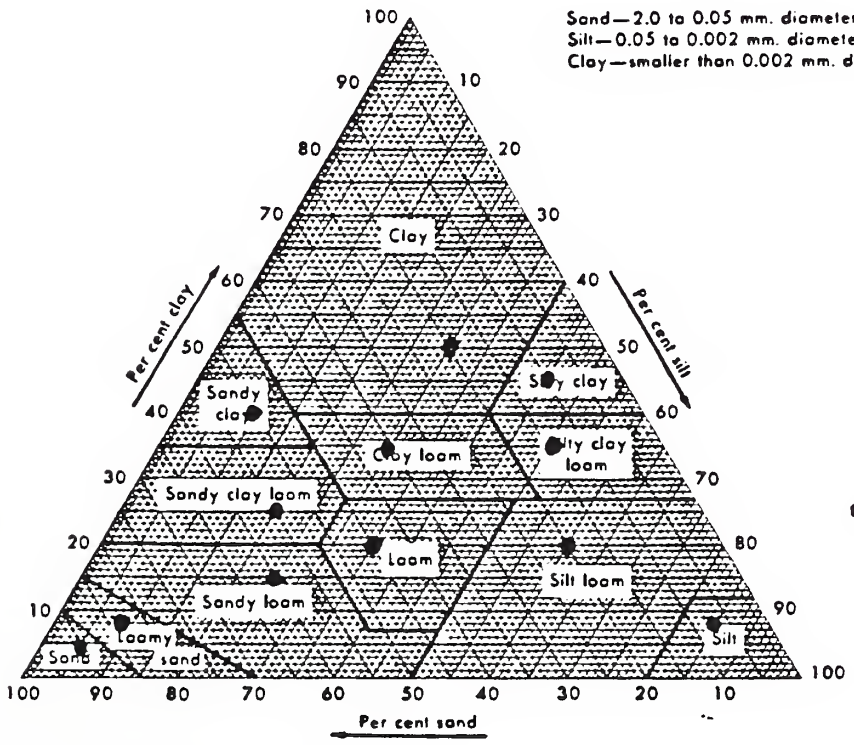
Condition	Bulk density	Weight density
	(g/cm^3)	(lb/ft^3)
Loose.	1.20	75
Not subject to compaction and tilled regularly with primary tillage equipment.	1.37	85
Subject to compaction and tilled regularly with primary tillage equipment.	1.54	96
Not subject to compaction and not tilled regularly with primary tillage equipment.	1.54	98
Subject to compaction and not tilled regularly.	1.65	103

Table 2-6.--Soil particle characteristics

Condition		Size	Density	Fraction in detached sediment	Particle
		(mm)	(g/cm^3)		
Soils with ratio of silt to sand & clay > 0.5 (sa 15%, si 60%, cl 5%).	a.	0.002	2.60	0.05	Primary clay.
	b.	.010	2.65	.08	Primary silt.
	c.	.020	1.80	.50	Small aggregate.
	d.	.500	1.60	.31	Large aggregate.
	e.	.200	2.65	.06	Primary sand.
High clay soils (sa 10%, si 40%, cl 50%).	a.	.002	2.60	.10	Primary clay.
	b.	.010	2.65	.06	Primary silt.
	c.	.075	1.80	.57	Small aggregate.
	d.	1.000	1.60	.25	Large aggregate.
	e.	.200	2.65	.02	Primary sand.
High sand soils (sa 75%, si 15%, cl 10%).	a.	.002	2.60	.02	Primary clay.
	b.	.010	2.65	.02	Primary silt.
	c.	.030	1.80	.16	Small aggregate.
	d.	.200	1.60	.20	Large aggregate.
	e.	.200	2.65	.60	Primary sand.

Table 2-4.--Average fraction of particle size distribution for topsoil textures for use in CREAMS model

USDA Classification	Sand	Silt	Clay
Clay	0.20	0.30	0.50
Silty clay	0.10	0.45	0.45
Sandy clay	0.50	0.10	0.40
Clay loam	0.35	0.30	0.35
Silty clay loam	0.15	0.50	0.35
Sandy clay loam	0.55	0.20	0.25
Loam	0.45	0.35	0.20
Silt loam	0.20	0.60	0.20
Sandy loam	0.60	0.25	0.15
Silt	0.5	0.85	0.10
Loamy sand	0.84	0.08	0.08
Sand	0.90	0.05	0.05



U.S. Department of Agriculture textural classification chart.

Table 2-5.--Estimate of Manning's "n" for channel flow and typical soil covers[1/]

Cover	Cover density	Manning's "n"
Smooth, bare soil; roughness elements.	Less than 1 in deep	0.030
	1-2 in deep	.033
	2-4 in deep	.038
	4-6 in deep	.045
Corn stalks (assumes residue stays in place and is not washed away).	1 ton/acre	.050
	2 tons/acre	.075
	3 tons/acre	.100
	4 tons/acre	.13
Wheat straw (assumes residue stays in place and is not washed away).	1 ton/acre	.060
	1.5 tons/acre	.100
	2 tons/acre	.15
	4 tons/acre	.25
Grass (assumes grass is erect and as deep as the flow).	Sparse	.04
	Poor	.05
	Fair	.06
	Good	.08
	Excellent	.13
	Dense	.20
	Very dense	.30
Small grain (20% to full maturity-rows with flow).	Poor, 7 in rows	.13
	Poor, 14 in rows	.13
	Good, 7 in rows	.30
	Good, 14 in rows	.20
(Rows across flows)	Good	.30
Sorghum and cotton	Poor	.07
	Good	.09
Sudangrass	Good	.20
Lespedeza	Good	.10
Lovegrass	Good	.15

[1/] Does not include effects of submergence or product of velocity-hydraulic radius.

Table 2-7.--Soil loss ratios (SLR) to describe the effects of cropping management (12)

Line No.	Cover, crop sequence, and management[1]	Spring residue[2]	Cover after plant[3]	Soil loss ratio[4] for cropstage period and canopy cover[5]							
				F	SB	1	2	3:80	90	96	4L[6]
		Lb	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct
	CORN AFTER C, GS, G OR COT IN MEADOWLESS SYSTEMS										
	Moldboard plow, conv till:										
1	Rdl, sprg TP	4,500	---	31	55	48	38	---	---	20	23
2		3,400	---	36	60	52	41	---	24	20	30
3		2,600	---	43	64	56	43	32	25	21	37
4		2,000	---	51	68	60	45	33	26	22	47
5	Rdl, fall TP	HP2	---	44	65	53	38	---	---	20	---
6		GP	---	49	70	57	41	---	24	20	---
7		FP	---	57	74	61	43	32	25	21	---
8		LP	---	65	78	65	45	32	26	22	---
9	RdR, sprg TP	HP	---	66	74	65	47	---	---	22	56
10		TP	---	67	75	66	47	---	27	23	62
11		FP	---	68	76	67	48	35	27	---	69
12		LP	---	69	77	68	49	35	---	---	74
13	RdR, fall TP	HP	---	76	82	70	49	---	---	22	---
14		GP	---	77	83	71	50	---	27	23	---
15		FP	---	78	85	72	51	35	27	---	---
16		LP	---	79	86	73	52	35	---	---	---
17	Wheeltrack pl, RdL, TP[8]	4,500	---	---	31	27	25	---	---	18	23
18		3,400	---	---	36	32	30	---	22	18	30
19		2,600	---	---	43	36	32	29	23	19	37
20		2,000	---	---	51	43	36	31	24	20	47
21	Deep off-set disk or	4,500	10	---	45	38	34	---	---	20	23
22	disk plow	3,400	10	---	52	43	37	---	24	20	30
23		2,600	5	---	57	48	40	32	25	21	37
24		2,000	---	---	61	51	42	33	26	22	47
25	No-till plant in crop	6,000	95	---	2	2	2	---	---	2	14
26	residue[9]	6,000	90	---	3	3	3	---	---	3	14
27		4,500	80	---	5	5	5	---	---	5	15
28		3,400	70	---	8	8	8	---	8	6	19
29		3,400	60	---	12	12	12	12	9	8	23
30		3,400	50	---	15	15	14	14	11	9	27
31		2,600	40	---	21	20	18	17	13	11	30
32		2,600	30	---	26	24	22	21	17	14	36
	Chisel, shallow disk, or fld cult, as only tillage:										
33	On moderate slopes	6,000	70	---	8	8	7	---	---	7	17
34			60	---	10	9	8	---	---	8	17
35			50	---	13	11	10	---	---	9	18
36			40	---	15	13	11	---	---	10	19
37			30	---	18	15	13	---	---	12	20
38			20	---	23	20	18	---	---	16	21
39	Do.	4,500	70	---	9	8	7	---	---	7	18
40			60	---	12	10	9	---	---	8	18
41			50	---	14	13	11	---	---	9	19
42			40	---	17	15	13	---	---	10	20
43			30	---	21	18	15	---	---	13	21
44			20	---	25	22	19	---	---	16	22
45	Do.	3,400	60	---	13	11	10	---	10	8	20
46			50	---	16	13	12	---	12	9	24
47			40	---	19	17	16	---	14	11	25
48			30	---	23	21	19	---	17	14	26
49			20	---	29	25	23	---	21	16	27
50			10	---	36	32	29	---	24	20	30
51	Do.	2,600	50	---	17	16	15	15	13	10	29
52			40	---	21	20	19	19	15	12	30
53			30	---	25	23	22	22	18	14	32
54			20	---	32	29	28	27	22	17	34
55			10	---	41	36	34	32	25	21	37
56	Do.	2,000	40	---	23	21	20	20	15	12	37
57			30	---	27	25	24	23	19	15	39
58			20	---	35	32	30	28	22	18	42
59			10	---	46	42	38	33	26	22	47
	On slopes >12 percent.										
60	Lines 33-59 times factor of:		---	---	1.3	1.3	1.1	1.0	1.0	1.0	1.0

Table 2-7.--Soil loss ratios (SLR) to describe the effects of cropping management (12)--Cont.

Line No.	Cover, crop sequence, and management[1]	Spring residue[2]	Cover after plant[3]	Soil loss ratio[4] for crop stage period and canopy cover[5]							
				F	SB	1	2	3:80	90	96	4L[6]
		Lb	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct
	Disk or harrow after spring chisel or fld cult: Lines 33-59 times factor of:										
61	On moderate slopes	----	---	---	1.1	1.1	1.1	1.0	1.0	1.0	1.0
62	On slopes >12 percent	----	---	---	1.4	1.4	1.2	1.0	1.0	1.0	1.0
	Ridge plant:[10] Lines 33-59 times factor of:[11]										
63	Rows on contour	----	---	---	.7	.7	.7	.7	.7	.7	.7
64	Rows U/D Slope <12%	----	---	---	.7	.7	1.0	1.0	1.0	1.0	1.0
65	Rows U/D slope >12%	----	---	---	.9	.9	1.0	1.0	1.0	1.0	1.0
	Till plant: Lines 33-59 times factor of:										
66	Rows on contour[11]	----	---	---	.7	.85	1.0	1.0	1.0	1.0	1.0
67	Rows U/D slope < 7%	----	---	---	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Strip till one-fourth of row spacing:										
68	Rows on contour[11]	4,500	12[60]	---	12	10	9	---	---	8	23
69		3,400	50	---	16	14	12	---	11	10	27
70		2,600	40	---	22	19	17	17	14	12	30
71		2,000	12[30]	---	27	23	21	20	16	13	36
72	Rows U/D slope	4,500	12[60]	---	16	13	11	---	---	9	23
73		3,400	50	---	20	17	14	---	12	11	27
74		2,600	40	---	26	22	19	17	14	12	30
75		2,000	30	---	31	26	23	20	16	13	36
	Vari-till:										
76	Rows on contour[11]	3,400	40	---	13	12	11	---	---	11	22
77		3,400	30	---	16	15	14	14	13	12	26
78		2,600	20	---	21	19	19	19	16	14	34
	CORN AFTER WC OF RYEGRASS OR WHEAT SEEDED IN C STUBBLE										
	WC reaches stemming stage:										
79	No-till pl in killed WC	4,000	---	---	7	7	7	---	7	6	(13)
80		3,000	---	---	11	11	11	11	9	7	
81		2,000	---	---	15	15	14	14	11	9	
82		1,500	---	---	20	19	18	18	14	11	
	Strip till one-fourth space										
83	Rows U/D slope	4,000	---	---	13	12	11	---	11	9	(13)
84		3,000	---	---	18	17	16	16	13	10	
85		2,000	---	---	23	22	20	19	15	12	
86		1,500	---	---	28	26	24	22	17	14	
87	Rows on contour[11]	4,000	---	---	10	10	10	---	10	8	(13)
88		3,000	---	---	15	15	15	15	12	9	
89		2,000	---	---	20	20	19	19	15	12	
90		1,500	---	---	25	24	23	22	17	14	
91	TP, conv seedbed	4,000	---	36	60	52	41	---	24	20	(13)
92		3,000	---	43	64	56	43	31	25	21	
93		2,000	---	51	68	50	45	33	26	22	
94		1,500	---	61	73	64	47	35	27	23	
	WC succulent blades only:										
95	No-till pl in killed WC	3,000	---	---	11	11	17	23	18	16	(13)
96		2,000	---	---	15	15	20	25	20	17	
97		1,500	---	---	20	20	23	26	21	18	
98		1,000	---	---	26	26	27	27	22	19	
99	Strip till one-fourth	3,000	---	---	18	18	21	25	20	17	(13)
100	row space	2,000	---	---	23	23	25	27	21	18	
101		1,500	---	---	28	28	28	28	22	19	
102		1,000	---	---	33	33	31	29	23	20	

Table 2-7.--Soil loss ratios (SLR) to describe the effects of cropping management (12)--Cont.

Line No.	Cover, crop sequence, and management[1]	Spring residue[2]	Cover after plant[3]	Soil loss ratio[4] for crop stage period and canopy cover[5]							
				F	SB	1	2	3:80	90	96	4L[6]
		Lb	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct
	CORN IN SOD-BASED SYSTEMS										
	No-till pl in killed sod:										
103	3 to 5 tons hay yld	----	---	---	1	1	1	---	1	1	1
104	1 to 2 tons hay yld	----	---	---	2	2	2	2	2	2	2
	Strip till, 3-5 ton M:										
105	50 percent cover, tilled strips		---	---	2	2	2	---	2	2	4
106	20 percent cover, tilled strips		---	----	3	3	3	---	3	3	5
	Strip till, 1-2 ton M:										
107	40 percent cover, tilled strips		---	---	4	4	4	4	4	4	6
108	20 percent cover, tilled strips		---	---	5	5	5	5	5	5	7
	Other tillage after sod:			(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)
	CORN AFTER SOYBEANS										
109	Sprg TP, conv till	HP	---	40	72	60	48	---	---	25	29
110		GP	---	47	78	65	51	---	30	25	37
111		FP	---	56	83	70	54	40	31	26	44
112	Fall TP, conv till	HP	---	47	75	60	48	---	---	25	---
113		GP	---	53	81	65	51	---	30	25	---
114		FP	---	62	86	70	54	40	31	26	---
115	Fall & sprg chisel or cult	HP	15-30	---	40	35	29	---	---	23	29
116		GP	25	---	45	39	33	---	27	23	37
117		GP	20	---	51	44	39	34	27	23	37
118		FP	15	---	58	51	44	36	28	23	44
119		LP	15-10	---	67	59	48	36	28	23	54
120	No-till pl in crop res'd	HP	15-40	---	25	20	19	---	14	11	26
121		GP	30	---	33	29	25	22	18	14	33
122		FP	20	---	44	38	32	27	23	18	40
	BEANS AFTER CORN										
123	Sprg TP, RdL, conv till	HP	---	33	60	52	38	---	20	17	(16)
124		GP	---	39	64	56	41	---	21	18	
125		FP	---	45	68	60	43	29	22	---	
126	Fall TP, RdL, conv till	HP	---	45	69	57	38	---	20	17	(16)
127		GP	---	52	73	61	41	---	21	18	
128		FP	---	59	77	65	43	29	22	---	
	Chisel or fld cult:			(17)	(17)	(17)	(17)	(17)	(17)	(17)	(16)
	BEANS AFTER BEANS			(18)	(18)	(18)	(18)	(18)	(18)	(18)	(16)
	GRAIN AFTER C, G, GS, COT[19]										
129	In disked residues:	4,500	70	---	12	12	11	7	4	2	(20)
130		3,400	60	---	16	14	12	7	4	2	
131			50	---	22	18	14	8	5	3	
132			40	---	27	21	16	9	5	3	
133			30	---	32	35	18	9	6	3	
134			20	---	38	30	21	10	6	3	
135	Do.	2,600	40	---	29	24	19	9	6	3	(20)
136			20	---	43	34	24	11	7	4	
137			10	---	52	39	27	12	7	4	
138	Do.	2,000	30	---	38	30	23	11	7	4	(20)
139			20	---	46	36	26	12	7	4	
140			10	---	56	43	30	13	8	5	
141	In disked stubble, RdR	----	---	---	79	62	42	17	11	6	(20)
142	Winter G after fall TP, RDL	HP	---	31	55	48	31	12	7	5	(20)
143		GP	---	36	60	52	33	13	8	5	
144		FP	---	43	64	56	36	14	9	5	
145		LP	---	53	68	60	38	15	10	6	

Table 2-7.--Soil loss ratios (SLR) to describe the effects of cropping management (12)--Cont.

Line No.	Cover, crop sequence, and management[1]	Spring residue[2]	Cover after plant[3]	Soil loss ratio[4] for cropstage period and canopy cover[5]							
				F	SB	1	2	3:80	90	96	4L[6]
		Lb	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct
	GRAIN AFTER SUMMER FALLOW										
146	With grain residues	200	10	---	70	55	43	18	13	11	([21])
147		500	30	---	43	34	23	13	10	8	
148		750	40	---	34	27	18	10	7	7	
149		1,000	50	---	26	21	15	8	7	6	
150		1,500	60	---	20	16	12	7	5	5	
151		2,000	70	---	14	11	9	7	5	5	
152	row crop residues	300	5	---	82	65	44	19	14	12	([21])
153		500	15	---	62	49	35	17	13	11	
154		750	23	---	50	40	29	14	11	9	
155		1,000	30	---	40	31	24	13	10	8	
156		1,500	45	---	31	24	18	10	8	7	
157		2,000	55	---	23	19	14	8	7	5	
158		2,500	65	---	17	14	12	7	5	4	
	POTATOES										
159	Rows with slope	----	---	43	64	56	36	26	19	16	
	Contoured rows, ridged when canopy cover is about										
160	50 percent[11]	----	---	43	64	56	18	13	10	8	

[1]Symbols: B, soybeans; C, corn; conv till, plow, disk and harrow for seebed; cot, cotton; F, rough fallow, fld cult, field cultivator; G, small grain; GS, grain sorghum; M, grass and legume meadow, at least 1 full year; pl, plant; RdL, crop residues left on field; RdR, crop residues removed; SB, seedbed period; sprg, spring; TP, plowed with moldboard; WC, winter cover crop;---, insignificant or an unlikely combination of variables.

[2]Dry weight per acre after winter loss and reductions by grazing or partial removal; 4,500 lbs represents 100 to 125 bu corn; 3,400 lbs, 75 to 99 bu; 2,600 lbs, 60 to 74 bu; and 2,000 lbs, 40 to 59 bu; with normal 30-percent winter loss. For RdR or fall-plow practices, these four productivity levels are indicated by HP, GP, FP, and LP, respectively (high, good, fair, and low productivity). In lines 70 to 102, this column indicates dry weight of the winter-cover crop.

[3]Percentage of soil surface covered by plant residue mulch after crop seeding. The difference between spring residue and that on the surface after crop seeding is reflected in the soil loss ratios as residues mixed with the topsoil.

[4]The soil loss ratios, given as percentages, assume that the indicated crop sequence and practices are followed consistently. One-year deviations from normal practices do not have the effect of a permanent change. Linear interpolation between lines is recommended when justified by field conditions.

[5]Cropstage periods are as defined on p. 18, Agriculture Handbook Number 537. The three columns for cropstage 3 are for 80, 90, and 96 to 100 percent canopy cover at maturity.

[6]Column 4L is for all residues left on field. Corn stalks partially standing as left by some mechanical pickers. If stalks are shredded and spread by picker, select ratio from table 2-10. When residues are reduced by grazing, take ratio from lower spring-residue line.

[7] Period 4 values in lines 9 to 12 are for corn stubble (stover removed).

[8]Inversion plowed, no secondary tillage. For this practice, residues must be left and incorporated.

[9]Soil surface and chopped residues of matured preceding crop undisturbed except in narrow slots in which seeds are planted.

[10]Top of old row ridge sliced off, throwing residues and some soil into furrow areas. Reridging assumed to occur near ned of cropstage 1.

[11]Where lower soil loss ratios are listed for rows on the contour, this reduction is in addition to the standard field contouring credit. The P value for contouring is used with these reduced loss ratios.

[12]Field-average percent cover; probably about three-fourths of percent cover on undisturbed strips.

[13]If again seeded to WC crop in corn stubble, evaluate winter period as a winter grain seeding (lines 132 to 148). Otherwise, see table 2-10.

[14]Select the appropriate line for the crop, tillage, and productivity level and multiply the listed soil loss ratios by sod residual factors from table 2-11.

[15]Spring residue may include carryover from prior corn crop.

[16]See table 2-10.

[17]Use values from lines 33 to 62 with appropriate dates and lengths of cropstage periods for beans in the locality.

[18]Values in lines 109 to 122 are best available estimates, but planting dates and lengths of cropstages may differ.

[19]When meadow is seeded with the grain, its effect will be reflected through higher percentages of cover in cropstages 3 and 4.

[20]Ratio depends on percent cover. See table 2-10.

[21]See item 12, table 2-9.

Table 2-8.--Approximate soil loss ratios for cotton(12)

Practice Number	Tillage operation(s)	Soil loss ratio[1]		
Expected final canopy percent cover:		65	80	95
Estimated initial percent cover from defoliation + stalks down:		30	45	60
COTTON ANNUALLY:		Percent		
1 . . .	None:			
	Defoliation to Dec. 31	36	24	15
	Jan. 1 to Feb. or Mar. tillage:			
	Cot Rd only	52	41	32
	Rd & 20 percent cover vol veg.[2]	32	26	20
	Rd & 30 percent cover vol veg.	26	20	14
2 . . .	Chisel plow soon after cot harvest:			
	Chiseling to Dec. 31	40	31	24
	Jan. 1 to sprg tillage	56	47	40
3 . . .	Fall disk after chisel:			
	Disking to Dec. 31	53	45	37
	Jan. 1 to sprg tillage	62	54	47
4 . . .	Chisel plow Feb-Mar, no prior tillage:			
	Cot Rd only	50	42	35
	Rd & 20 percent vol veg	39	33	28
	Rd & 30 percent vol veg	34	29	25
5 . . .	Bed ("hip") Feb-Mar, no prior tillage:			
	Cot Rd only	100	84	70
	Rd & 20 percent vol veg	78	66	56
	Rd & 30 percent vol veg	68	58	50
	Split ridges & plant after hip, or Disk & plant after chisel (SB):			
	Cot Rd only	61	54	47
	Rd & 20 percent vol veg	53	47	41
	Rd & 30 percent vol veg	50	44	38
	Cropstage 1:			
	Cot Rd only	57	50	43
	Rd & 20 percent vol veg	49	43	38
	Rd & 30 percent vol veg	46	41	36
	Cropstage 2:	45	39	34
	Cropstage 3:	40	27	17
6 . . .	Bed (hip) after 1 prior tillage:			
	Cot Rd only	110	96	84
	Rd & 20 percent veg	94	82	72
	Rd & 30 percent veg	90	78	68
	Split ridges after hip (SB):			
	Cot Rd only	66	61	52
	Rd & 20 to 30 percent veg	61	55	49
	Cropstage 1:			
	Cot Rd only	60	56	49
	Rd & 20 to 30 percent veg	56	51	46
	Cropstage 2:	47	44	38
	Cropstage 3:	42	30	19
7 . . .	Hip after 2 prior tillages:			
	Cot Rd only	116	108	98
	Rd & 20-30 percent veg	108	98	88
	Split ridges after hip (SB)	67	62	57
8 . . .	Hip after 3 or more tillages:	120	110	102
	Split ridges after hip (SB)	68	64	59
9 . . .	Conventional moldboard plow and disk:			
	Fallow period	42	39	36
	Seedbed period	68	64	59
	Cropstage 1	63	59	55
	Cropstage 2	49	46	43
	Cropstage 3	44	32	22
	Cropstage 4 (See practices 1, 2, and 3)			

COTTON AFTER SOD CROP:

For the first or second crop after a grass or grass-and-legume meadow has been turnplowed, multiply values given in the last five lines above by sod residual factors from table 2-11.

COTTON AFTER SOYBEANS:

Select values from above and multiply by 1.25.

Table 2-8.--Approximate soil loss ratios for cotton (12)--Cont.

[1]Alternate procedure for estimating the soil loss ratios:
The ratios given above for cotton are based on estimates for reductions in percent cover through normal winter loss and by the successive tillage operations. Research is underway in Mississippi to obtain more accurate residue data in relation to tillage practices. This research should provide more accurate soil loss ratios for cotton within a few years.

Where the reductions in percent cover by winter loss and tillage operations are small, the following procedure may be used to compute soil loss ratios for the preplant and seedbed periods: Enter figure 6 with the percentage of the field surface covered by residue mulch, move vertically to the upper curve, and read the mulch factor on the scale at the left. Multiply this factor by a factor selected from the following tabulation to credit for effects of land-use residual, surface roughness and porosity.

Productivity level	No tillage	Rough surface	Smoothed surface
High	0.66	0.50	0.56
Medium	.71	.54	.61
Poor	.75	.58	.65

Values for the bedded period on slopes of less than 1 percent should be estimated at twice the value computed above for rough surfaces.

[2]Rd, crop residue; vol veg, volunteer vegetation.

Table 2-9.--Soil loss ratios for conditions not evaluated in table 2-7 (12)

COTTON:
  See table 2-8.
CROPSTAGE 4 FOR ROWCROPS:
  Stalks broken and partially standing: Use col. 4L.
  Stalks standing after hand picking: Col. 4L times 1.15.
  Stalks shredded without soil tillage: See table 2-10.
  Fall chisel: Select values from lines 33-62, seedbed column.
CROPSTAGE 4 FOR SMALL GRAIN:
  See table 2-10.
DOUBLE CROPPING:
  Derive annual C value by selecting from table 2-7 the soil loss percentages for the successive cropstage periods of each crop.
ESTABLISHED MEADOW, FULL-YEAR PERCENTAGES:

Grass and legume mix,	3 to 5 t hay	0.4
Do.	2 to 3 t hay	.6
Do.	1 t hay	1.0
Sericea, after second year		1.0
Red clover		1.5
Alfalfa, lespedeza, and second-year sericea		2.0
Sweetclover		2.5

MEADOW SEEDING WITHOUT NURSE CROP:
  Determine appropriate lengths of cropstage periods SB, 1, and 2, and apply values given for small grain seeding.
PEANUTS:
  Comparison with soybeans is suggested.
PINEAPPLES:
  Direct data not available. Tentative values derived analytically are available from the SCS in Hawaii or the Western Technical Service Center at Portland, Oreg.
SORGHUM:
  Select values given for corn, on the basis of expected crop residues and canopy cover.
SUGARBEETS:
  Direct data not available. Probably most nearly comparable to potatoes, without the ridging credit.
SUGARCANE:
  Tentative values available from sources given for pineapples.
SUMMER FALLOW IN LOW-RAINFALL AREAS, USE GRAIN OR ROW CROP RESIDUES:
  The approximate soil loss percentage after each successive tillage operation may be obtained from the following tabulation by estimating the percent surface cover after that tillage and selecting the column for the appropriate amount of initial residue. The given value credit benefits of the residue mulch, residues mixed with soil by tillage, and the crop system residual.

Percent cover by mulch	Initial residue (lbs/A) >4,000	3,000	2,000	1,500
90	4	---[1]	---	---
80	8	8[1]	---[1]	---
70	12	13	14[1]	---[1]
60	16	17	18	19[1]
50	20	22	24	25
40	25	27	30	32
30	29	33	37	39
20	35	39	44	48
10	47	55	63	68

[1]For grain residue only.

WINTER COVER SEEDING IN ROW CROP STUBBLE OR RESIDUES:
  Define cropstage periods based on the cover seeding date and apply values from lines 129 to 145.

Table 2-10.--Soil loss ratios (pct) for cropstage 4 when stalks are chopped and distributed without soil tillage (12)

Mulch cover[1]	Corn or Sorghum		Soybeans		Grain Stubble[4]
	Tilled seedbed[2]	No-till	Tilled seedbed[2]	No-till in corn rd[3]	
20	48	34	60	42	48
30	37	26	46	32	37
40	30	21	38	26	30
50	22	15	28	19	22
60	17	12	21	16	17
70	12	8	15	10	12
80	7	5	9	6	7
90	4	3	--	--	4
95	3	2	--	--	3

[1]Part of a field surface directly covered by pieces of residue mulch.

[2]This column applies for all systems other than no-till.

[3]Cover after bean harvest may include an appreciable number of stalks carried over from the prior corn crop.

[4]For grain with meadow seeding, include meadow growth in percent cover and limit grain period 4 to 2 mo. Thereafter, classify as established meadow.

Table 2-11.--Factors to credit residual effects of turned sod[1/] (12)

Crop	Hay yield	Factor for cropstage period:				
		F	SB and 1	2	3	4
	Tons					
First year after mead:						
Row crop or grain . .	3-5	0.25	0.40	0.45	0.50	0.60
	2-3	.30	.45	.50	.55	.65
	1-2	.35	.50	.55	.60	.70
Second year after mead:						
Row crop	3-5	.70	.80	.85	.90	.95
	2-3	.75	.85	.90	.95	1.0
	1-2	.80	.90	.95	1.0	1.0
Spring grain	3-5	---	.75	.80	.85	.95
	2-3	---	.80	.85	.90	1.0
	1-2	---	.85	.90	.95	1.0
Winter grain	3-5	---	.60	.70	.85	.95
	2-3	---	.65	.75	.90	1.0
	1-2	---	.70	.85	.95	1.0

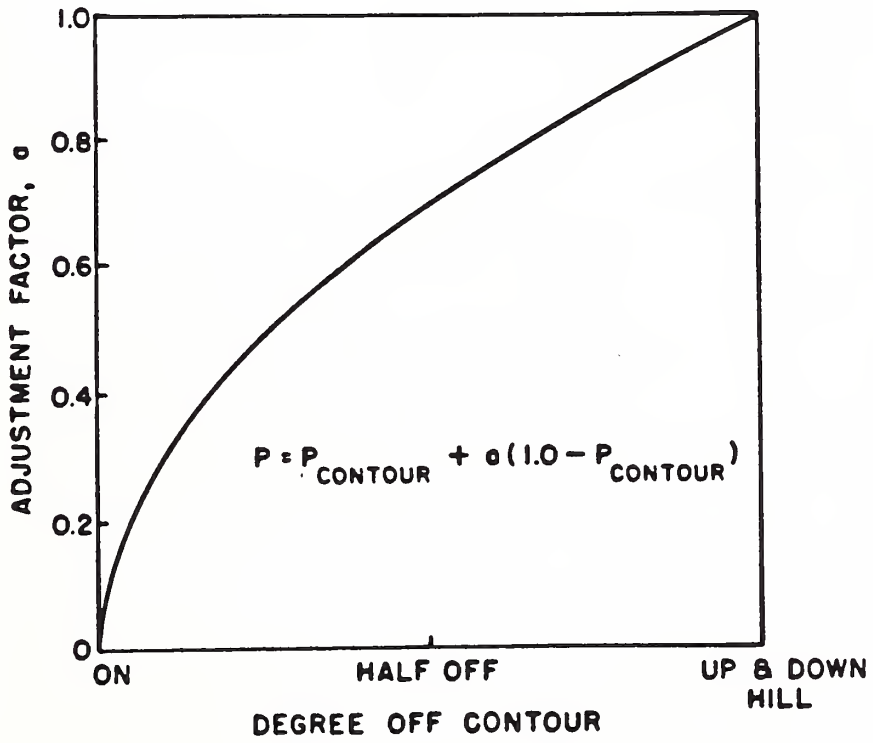
[1/]These factors are to be multipled by the appropriate soil loss percentages selected from table 2-7. They are directly applicable for sod-forming meadows of at least 1 full year duration, plowed not more than 1 month before final seedbed preparation.

When sod is fall plowed for spring planting, the listed values for all cropstage periods are increased by adding 0.02 for each additional month by which the plowing precedes spring seedbed preparatiion. For example, September plowing would precede May disking by 8 months and 0.02(8--1), or 0.14, would be added to each value in the table. For nonsod-forming meadows, like sweetclover or lespedeza, multiply the factors by 1.2. When the computed value is greater than 1.0, use as 1.0.

Table 2-12.--Contour factor values and slope-length limits for contouring (From Wischmeier and Smith (12))

Land Slope (%)	Contour factor Value ($P_{contour}$)	Maximum length 1/ (ft)
1 to 2	0.60	400
3 to 5	.50	300
6 to 8	.50	200
9 to 12	.60	120
13 to 16	.70	80
17 to 20	.80	60
21 to 25	.90	50

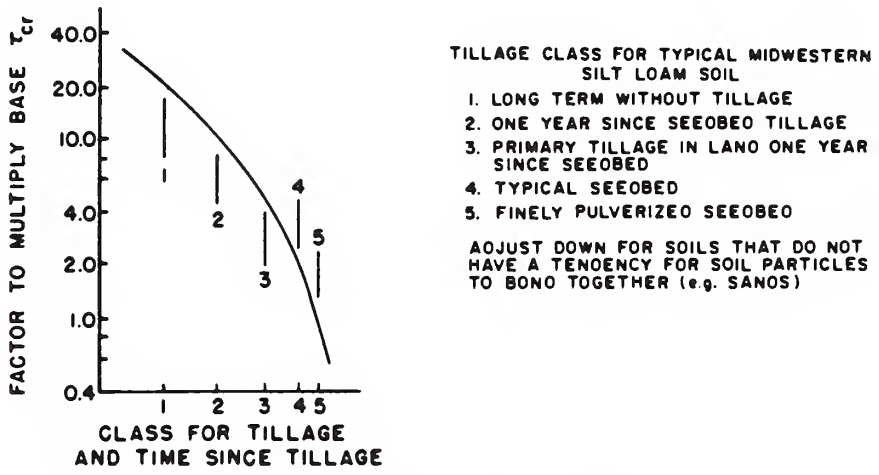
1/ Limit may be increased by 25% if residue cover after crop seedling regularly will exceed 50%.



Adjustment factor for being off contour with tillage.

Table 2-13.--Critical shear stress values as a function of tillage and consolidation for moderately erodible soils

Tillage-consolidation condition	Critical shear stress
	(lb/ft^2)
Moldboard plowed	0.20
Chisel or disk for primary tillage	.15
Disking for common seedbed for corn or cultivation of crop	.10
Finely pulverized seedbed	.05
1 month after last tillage of common seedbed	.20
2 months after last tillage of common seedbed	.30
3 months after last tillage of common seedbed	.40
Long term, undisturbed	.60



Effect of tillage on critical shear stress.

Table 2-14.--Critical shear stress value for corn stalk and wheat stalk en-masse movement[1/]

Type of mulch	Rate	Critical shear stress[2/]
	(tons/acre)	(lb/ft^2)
Corn stalks (not incorporated).	1	0.051
	2	.105
	3	.156
	4	.210
Wheat straw (not anchored)	1	0.64
	1.5	.140
	2	.232
	4	.841

[1/] Stress acting on mulch; does not include stress acting on soil.

[2/] Assign a value of 100.0 to the variable if cover failure is not allowed.

Table 2-15.--Changes along a channel--The model can describe changes in all parameters along the channel, but it primarily represents the end or beginning of grass within the length of the channel. Figure 2-1 shows a typical grassed waterway ending within a field where the channel flattens to where erosion in the waterway probably would not occur. The channel from 0 to 100 ft would be tilled. At seedbed time a sample parameter data set would be:

	Tilled portion		Grassed waterway	
	Distance from end	Parameter value	Distance from end	Parameter value
Manning's n	0.0	0.03	100	0.13
Critical soil shear	.0	.10	100	.60
Critical cover shear	.0	100.00	100	100.00
Depth to nonerodible	.0	.33	Same for entire channel length	
Depth at side of channel	.0	.33		
Channel width	.0	20.00		

Refer to following sections for discussion of selection of these parameter values.

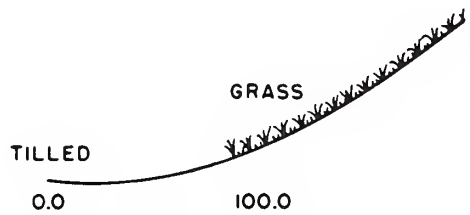
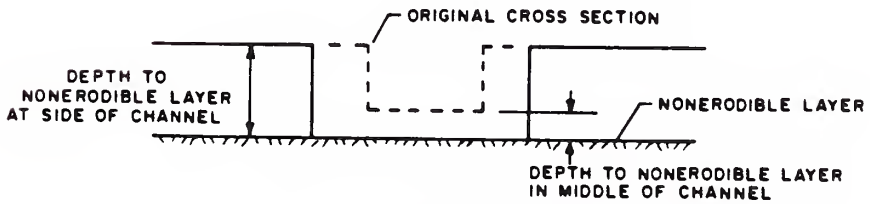


Figure 2-1. Representation of a channel having a change in cover along channel.



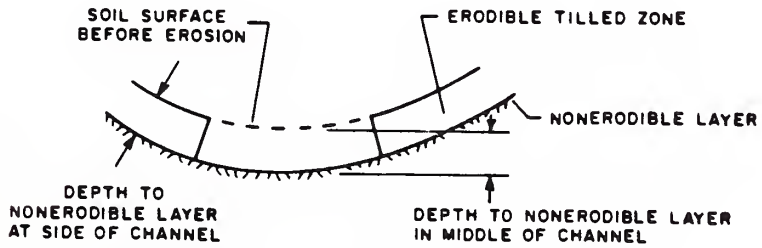


Figure 2-2. Defining sketch for depths to nonerodible layer for a small, incised channel and for a concentrated-flow waterway.

Table 2-16.--Guidelines on using the built-in friction slope curves

Condition	Friction slope assumption
Supercritical flow all along the channel and at the outlet.	Kinematic (normal) flow. FLAGS = 2
Small discharge; very flat channel gradient (0.001 to 0.005); critical depth at outlet (for example, channel flow in a row middle).	Kinematic (normal) flow. FLAGS = 2
Restricted outlet giving backwater.	Friction slope curves. FLAGS = 1
Critical depth at the outlet of diversions and conventional terrace channels.	Friction slope curves. FLAGS = 1
Zero grade channel (for example, level terraces).	Friction slope curves. FLAGS = 1

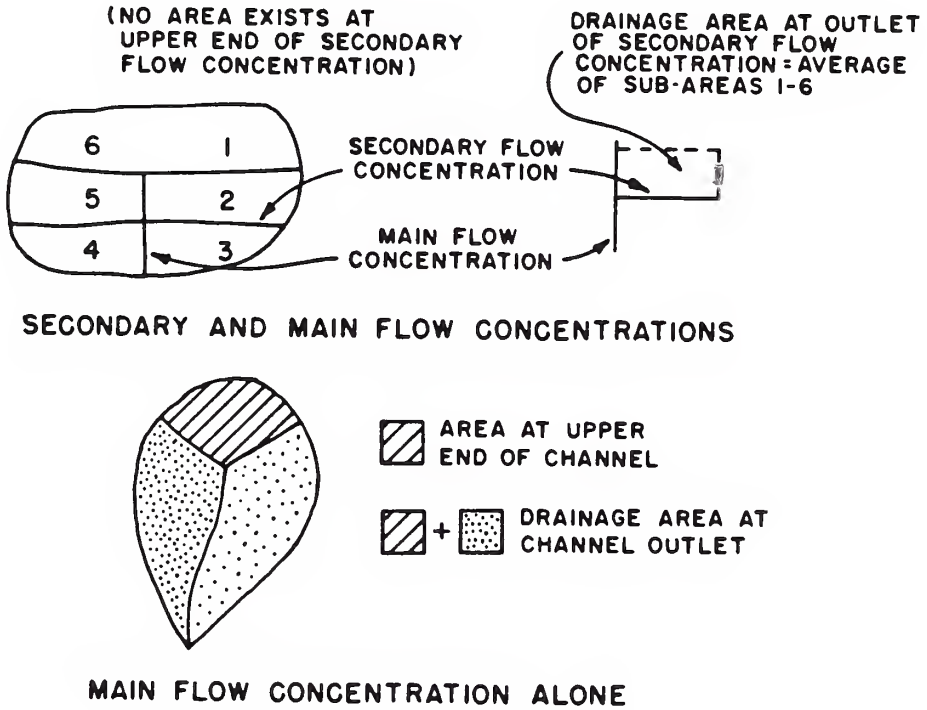


Figure 2-3. Channel Area

APPENDIX 3

NUTRIENT MODEL PARAMETER TABLES

Table 3-1.--Approximate yield and nutrient content of selected crops (values can vary by a factor of two across the country)

Crop		Yield		Nitrogen		Phosphorus	
		(kg/ha)	(units/acre)	(kg/ha)	(lb/acre)	(kg/ha)	(lb/acre)
Alfalfa[2/]		8,960	(4 tons)	224	(200)	20	(18)
Barley	grain	2,150	(40 bu)	39	(35)	7	(6)
	straw	2,240	(1 ton)	17	(15)	2	(2)
Beans[2/]	(dry)	1,950	(30 bu)	84	(75)	11	(10)
Bermudagrass		17,920	(8 tons)	224	(200)	34	(30)
Bluegrass		4,480	(2 tons)	67	(60)	9	(8)
Cabbage		44,800	(20 tons)	168	(150)	18	(16)
Clover[2/]	red	4,480	(2 tons)	90	(80)	11	(10)
	white	4,480	(2 tons)	146	(130)	11	(10)
Corn	grain	9,400	(150 bu)	151	(135)	27	(24)
	stover	10,080	(4.5 tons)	112	(100)	18	(16)
	silage	56,000	(25 tons)	224	(200)	34	(30)
Cotton	lint & seed	2,240	(1 ton)	67	(60)	13	(12)
	stalks	2,240	(1 ton)	50	(45)	7	(6)
Cowpea hay[2/]		4,480	(2 tons)	134	(120)	11	(10)
Lettuce		44,800	(20 tons)	100	(90)	13	(12)
Lespedeza[2/]		4,480	(2 tons)	95	(85)	9	(8)
Oats	grain	3,200	(90 bu)	62	(55)	11	(10)
	straw	4,480	(2 tons)	28	(25)	9	(8)
Onions		16,800	(7.5 tons)	50	(45)	9	(8)
Oranges		62,720	(28 tons)	95	(85)	13	(12)
Peanuts [2/]	nuts	3,360	(1.5 tons)	123	(110)	7	(6)
Potatoes	tubers	44,800	(400 cwt)	106	(95)	13	(12)
	vines	2,240	(1 ton)	100	(90)	9	(8)
Rice	grain	4,540	(90 bu)	62	(55)	13	(12)
	straw	5,600	(2.5 tons)	34	(30)	4	(4)
Rye	grain	1,880	(30 bu)	39	(35)	4	(4)
	straw	3,360	(1.5 tons)	17	(15)	4	(4)
Sorghum	grain	3,360	(60 bu)	56	(50)	11	(10)
	stover	6,720	(3 tons)	73	(65)	9	(8)
Soybean[2/]	grain	3,020	(45 bu)	179	(160)	18	(16)
	straw	2,240	(1 ton)	28	(25)	4	(4)
Sugarbeets	roots	44,800	(20 tons)	95	(85)	16	(14)
	tops	26,880	(12 tons)	123	(110)	11	(10)
Sugarcane	stalks	67,200	(30 tons)	112	(100)	22	(20)
	tops	29,120	(13 tons)	56	(50)	11	(10)
Timothy		5,600	(2.5 tons)	67	(60)	11	(10)
Tobacco		3,360	(1.5 tons)	129	(115)	11	(10)
Tomatoes	fruit	56,000	(25 tons)	162	(145)	22	(20)
	vines	3,360	(1.5 tons)	78	(70)	11	(10)
Wheat	grain	3,360	(50 bu)	73	(65)	16	(14)
	straw	3,360	(1.5 tons)	22	(20)	2	(2)

1/ Pounds P = 0.436 lbs P_2O_5.

2/ Legumes that do not require fertilizer nitrogen.

Table 3-2.--Potential mineralizable nitrogens

Soil order	Soils	N_o
	(Number)	(kg/ha)
Alf----------	10	391±167
Arid---------	7	289±207
Ent----------	7	342±176
Incept-------	1	245
Moll---------	22	444±195
Spod---------	2	600±109
Ult----------	12	262±142
Vert---------	1	389
All Above----	62	373±189

Table 3-3.--Cubic Coefficients for nitrogen uptake option 1

	C_1	C_2	C_3	C_4
Grain sorghum and corn-------	0.0209	-0.157	0.0128	-0.415
Wheat----------	.0330	- .134	.0134	- .750
Cotton----------	.0177	- .253	.0177	- .253
Soybeans----------	.0259	- .104	.0259	- .104

Table 3-4.--N uptake parameters for option II

Crop	PU Potential N uptake	DOM (50% uptake)	SD (84% uptake)
	(kg/ha)	(days)	(days)
Corn	150 - 300	60	27
Sorghum	140 - 280	70	15
Wheat	90 - 180	50	8
Cotton	60 - 200	60	28

Soybeans 180

APPENDIX 4

PESTICIDE MODEL PARAMETER TABLES

Table 4-1.--Interception of pesticides by plants

Pesticide	Application mode	Target	Amount of pesticide applied on target	Reference
			(Percent)	
Organochlorine				
DDT	Ground applicator	Paper sheet[1/]	35	Willis and McDowell[2/]
Kelthane	do.	Paper sheet[3/]	44	Do.
Toxaphene	do.	Paper sheet[4/]	65	Do.
Toxaphene	do.	Paper sheet[5/]	62	Do.
DDT	do.	Cotton[6/]	12	Do.
Toxaphene	do.	do.	28	Do.
Toxaphene	do.	do.	25	Do.
DDT	do.	Cotton[7/]	39	(35)
DDT	do.	Cotton[8/]	83	Do.
Toxaphene	Airplane	Cotton[9/]	14	Willis and McDowell.[2/]
Methoxychlor	do.	Glass plates[10/]	47	(36)
Methoxychlor	do.	Alfalfa	49	(38)
Methoxychlor	do.	Cotton	57	(37)
Organophosphate				
Parathion	Air blast	Citrus trees	[11/]22-35	(31)
Parathion	do.	do.	[11/]28-39	Spencer.[2/]
Parathion	Oscillating boom	do.	[11/]20-40	(12)
Phenthoate	Oscillating boom and air blast.	do.	[11/]14-26	(18)

1/ Chromatography paper (46 x 57 cm) placed in top of cotton row, 50 cm above soil; 22% applied on soil.
2/ Preliminary unpublished data.
3/ Chromatography paper (46 x 57 cm) placed in top of cotton row, 50 cm above soil; 22% applied on soil.
4/ Chromatography paper (46 x 57 cm) placed in top of cotton row, 50 cm above soil; 35% applied on soil.
5/ Chromatography paper (46 x 57 cm) placed in top of cotton row, 50 cm above soil; 32% applied on soil.
6/ Cotton height, 50 cm; estimated 40% groundcover.
7/ Cotton height, 74 cm; 34% of applied on soil.
8/ Cotton height, 124 cm; 6% of applied on soil.
9/ Cotton height, 165 cm; 100% groundcover; none applied on soil.
10/ Glass plates installed in cotton and alfalfa.
11/ Values are the ranges of percent of applied pesticide found on ground beneath citrus trees. Unknown portion of remainder was intercepted by foliage.

Table 4-2.--Pesticide removal from foliage by rainfall

Class	Time after pesticide application	Rainfall		Dislodgeable residues removed	Reference
		Amount	Method of application		
	(days)	(cm)		(%)	
Organophosphate					
Phenthoate	3	0.28	Oscillating boom sprayer.	68	(18)
Phenthoate	10	.28	Oscillating boom sprayer.	71	(18)
Parathion	48	6.40	Natural	65	(12)
	22	6.40	do.	70	(12)
	3	.38	Oscillating boom sprayer.	60	(12)
Azinphosmethyl	3	.33	do.	60	(12)
Dioxathion	4	--	do.	56	(39)
	10	--	do.	37	(39)
Carbamate					
Benomyl	13	1.34	"Sprinkling" (simulated rain).	55	(4)
Organochlorine					
Toxaphene	2 hr	2.54	Rainfall simulator.	5	McDowell and Willis.[1/]
Other					
Diflubenzuron	14	7.60	Natural	70	(2)

[1/] Unpublished.

Table 4-3.--Water solubility (SOLH20) and application rate (APRATE) of commonly used herbicides[1/]

Pesticide trade name	Pesticide common name	Water solubility	Application rates[2/]
		(ppm)	(lb/acre)
AMEX 820	A-820	1.0	1 - 5
Lasso	ALACHLOR	242	1 - 4
EVIK	AMETRYNE	185	2 - 8
Amitrol-T	AMITROL	280,000	2 - 10
Dessicant	ARSENIC ACID	Freely	1.5
AA trex	ATRAZINE	33	2 - 4
Balan	BENEFIN	< 1	1.12 - 1.5
Basagran	BENTAZON	5%	0.5 - 1.5
Hyvar-X	BROMACIL	815	1.5 - 24
Machete	BUTACHLOR	23	1.5 - 4
Sutan	BUTYLATE	45	3 - 4
Bromex	CHLORBROMURON	50	0.75 - 4
Norex	CHLOROXURON	2.7	2 - 8
	2,4-D	900	0.25 - 4
DOWPON	DALAPON	Very soluble	0.75 - 20
Banvel	DICAMBA	4,500	0.06 - 10
COBSX	DINITRAMINE	1	1/3 - 2/3
DYMID, ENIDE	DPEHENAMID	260	2 - 6
Karmex	DIURON	42	0.06 - 48
Urab	FENURON	3,850	18 - 27
Cotoran	FLUOMETURON	90	0.5 - 4
Roundup	GLYPHOSATE	1.2%	1 - 4
PAARLAN	ISOPROPALIN	0.11	1 - 2
Sencor	METRIBUZIN	1,220	0.25 - 1.0
Cadonate, Weed-Hoe	MSMA	Very soluble	2 - 3.8
Telvar	MONURON	230	4 - 48
Planavin	NITRALIN	0.6	0.5 - 1.5
Ryzelan	ORYZALIN	2.4	0.75 - 1.75
Ortho Paraquat	PARAQUAT	Completely	0.25 - 1
Tordan	PICLORAM	430	1 - 8
Tolban	PROFLURALIN	0.1	0.5 - 1.5
Pramitol	PROMETONE	750	10 - 60
Caparol	PROMETRYNE	48	0.48 - 2.75
Ramrod	PROPACHLOR	580	3 - 6
Milogard	PROPAZINE	8.6	1 - 4
Pyramin	PYRAZON	400	2 - 4
2,4,5-TP	SILVEX	140	0.75 - 16
Princep	SIMAZINE	5	2 - 4
2,4,5-T	2,4,5-T	238	0.5 - 16
Randox	TCBE	2	2.6
Treflan	TRIFLURALIN	1	0.5 - 2

[1/] Hilton, H. L., R. W. Bovey, H. M. Hull, W. R. Mullison, and R. E. Talbert. 1974. Herbicide Handbook of the Weed Science Society of America. Third edition. Champaign, Ill. 430 pp.

[2/] Range for active ingredient

Table 4-4.--Water solubility (SOLH20) of commonly used insecticides[1/] [2/]

Insecticide trade name	Insecticide common name	Water solubility ppm
Orthene	ACEPHAT	65%
Guthion	AZINPHOSMETHYL	29
Bux	BUFENCARB	low
Sevin	CARBARYL	40
Furadan	CARBOFURAN	700
Lorsban	CHLORPYPIFOS	2
Spectracide, Diazinon	DIAZINON	0.004%
Di-Syston	DISULFOTON	25
Dasanit	FENSULFOTHION	1,600
Cythion	MALATHION	145
Supracide	METHIDATHION	240
Lannate, Nudrin	METHOMYL	58,000
Metacide	METHYL PARATHION	50 - 60
Methyl Parathion		
Niran, Bladan	PARATHION	24
Thimet, Phorate-10G	PHORATE	50
Toxaphene	TOXAPHENE	3

[1/] Berg, G. L., (ed). 1979. Farm Chemicals Handbook, Section D - Pesticide Dictionary, Merster Pub. Co., Willoughby, Ohio. 316 pp.

[2/] Lawless, E. W., T. L. Ferguson, and A. F. Meiners. 1975. Guidelines for the disposal of small quantities of unused pesticides. U.S. Environmental Protection Agency Technology Series. EPA-670/2-75-057. 331 pp.

Table 4-5.--Pesticide half-lives on foliage

Pesticide	Formulation[1/]	Number of observations	Half-life (days)	Reference
		Pesticide Class - Organochlorine		
Aldrin	EC	14	4.6± 2.9	(16)
	WP	8	4.9± 3.6	(16)
	D	1	12.0	(16)
Chlordane	EC	2	12.5± 6.4	(16)
	WP	11	12.5± 6.4	(16)
	D	2	12.5± 6.4	(16)
DDT	EC	9	8.4± 3.8	(16)
	WP	3	13.9±12.3	(16)
	D	4	3.8± 1.3	(16)
DDT	EC	2	10.6± 0.5	Willis and McDowell.[2/]
Dieldrin	EC	6	4.3± 1.4	(16)
	WP	5	4.9± 3.3	(16)
	D	2	5.8± 0.4	(16)
	G	2	17.0± 5.7	(16)
Endrin	EC	15	8.0± 4.1	(16)
	WP	1	15.0	(16)
	D	2	9.0±11.3	(16)
Ethylan	EC	1	3.4	(32)
Heptachlor	EC	10	5.3± 3.2	(16)
	WP	3	2.7± 0.6	(16)
	D	10	6.4± 3.9	(16)
	G	5	6.3± 4.4	(16)
Lindane	EC	5	5.5± 3.3	(16)
	WP	4	3.9± 2.4	(16)
	D	4	2.1± 0.3	(16)
	G	2	7.5± 0.7	(16)
Methoxychlor	EC	2	2.5± 0.7	(16)
	WP	10	4.9± 2.7	(16)
	D	11	3.5± 2.5	(16)
Toxaphene	EC	13	6.4± 4.8	(16)
	WP	2	2.3± 0.4	(16)
	D	5	2.3± 1.2	(16)
Toxaphene	EC	6	7.1± 3.7	Willis and McDowell.[2/]
Acephate	WP	3	2.8± 0.4	(23)
Azinphosmethyl	EC	3	1.6± 1.0	(16)
	WP	3	7.9± 9.7	(16)
	D	3	5.2± 4.5	(16)
	EC	5	7.4± 2.4	(29)
	WP	1	9.8	(29)
		Pesticide Class - Organophosphate		
Azinphosmethyl	WP	1	16.0	(41)
Chlorpyrifos-methyl	EC	1	1.0	(32)
	EC	6	3.3± 0.7	(22)

Table 4-5.--Pesticide half-lives on foliage--continued

Pesticide	Formulation[1/]	Number of observations	Half-life	Reference
			(days)	
	Pesticide Class - Organophosphate			
Cyanophenphos	EC	1	2.6	(32)
Demeton	EC	20	5.4± 1.9	(16)
Diazinon	EC	2	3.0± 2.8	(16)
	WP	6	4.0± 3.3	(16)
	EC	1	1.1	(32)
Dimethoate	EC	5	5.1± 1.7	(29)
	WP	1	7.1	(29)
Diperex	EC	1	2.0	(16)
EPN	WP	5	5.5± 2.1	(16)
Ethion	WP	1	7.5	(16)
	EC	10	5.0± 2.7	(28)
	WP	1	7.4	(41)
Fenitrothion	EC	1	1.5	(32)
Leptophos	EC	1	2.2	(32)
Malathion	EC	22	2.4± 1.5	(16)
	WP	8	4.8± 2.5	(16)
	D	13	2.3± 1.4	(16)
	EC	1	1.8	(32)
Methidathion	EC	1	1.1	(32)
Methyl Parathion	EC	2	3.0± 2.8	(16)
Parathion	EC	8	2.6± 1.7	(16)
	WP	11	4.3± 4.0	(16)
	D	2	2.6± 0.6	(16)
Phorate	G	1	2.0	(16)
Phosalone	EC	1	16.0	(41)
Phosdrin	EC	5	0.9± 0.2	(16)
Phosphamidon	EC	4	2.0± 1.2	(16)
Quinalphos	EC	2	1.6± 0.0	(32)
Salithion	EC	1	0.7	(32)
Tokuthion	EC	1	3.1	(32)
Triazophos	EC	1	3.0	(32)
Trithion	WP	1	2.0	(16)
	D	2	2.5± 0.7	(16)
	Pesticide Class - Carbamate			
Carbaryl	WP	3	6.8± 1.3	(16)
	D	2	1.5± 0.7	(16)
Carbofuran	F	1	1.1	(32)
	Pesticide Class - Other			
Permethrin	--	1	35.4	(10)
Dicamba	--	1	9.3	L. J. Lane[2/]
2,4-D	--	1	8.9	Do.
2,4,5-T	--	1	9.6	Do.
Picloram	--	1	8.0	Do.

1/ EC - emulsifiable concentrate; WP = wettable powder; D - dust; G = granular; F - flowable.

2/ Unpublished.

Table 4-6.--Guide to pesticide half-lives on foliage

Class	Group	Mean half-life (days)
Organochlorine	Fast (aldrin, dieldrin, ethylan, heptachlor, lindan, methoxychlor).	4.0± 1.0
	Slow (chlordane, DDT, endrin, toxaphene).	9.7± 3.9
Organophosphate	Fast (acephate, chlorpyrifos-methyl, cyanophenphos, diazinon, dipterex, ethion, fenitrothion, leptophos, malathion, methidathion, methyl parathion, phorate, phosdrin, phosphamidon, quinalphos, alithion, tokuthion, triazophos, trithion).	2.4± .1
	Slow (azinphosmethyl, demeton, dimethoate, EPN, phosalone).	8.2± 4.6
Carbamate	Fast (carbofuran)	1.1
	Slow (carbaryl WP)	6.8± 1.3

Table 4-7.--Values of k_s for dissipation of pesticides from soil surfaces

Pesticide	Soil Type	pH	OM (%)	Crop or conditions	Application rate (kg/ha)	k_s	Reference
				FUNGICIDES			
Maneb	Keyport sil[1/]	---	---	---	---	0.0126	(58)
Maneb	Galestown	6.7	5.2	Tomato	2	2/.0278	(51)
Zineb	Galestown	6.7	5.2	Tomato	2	3/.0512	(57)
				HERBICIDES			
Asulam	Regina c	7.7	4.2	---	---	.0141-.1174	(68)
Benefin	Taloka sl	---	1	---	1.7	.3349	(31)
Butralin	Taloka sl	---	1	---	2.24	.1077	(31)
2,4-D isooctyl	Galestown	6.7	5.2	Bluegrass	2.8	.0923	(52)
2,4-D isooctyl	Acadia sil	5.8	2.6	---	5.7	3/.0183	(75)
2,4-D	Acadia sil	5.8	2.6	---	7.8	.0788	(75)
2,4-D isooctyl	Acadia	5.8	2.6	---	15.7	.0486	(75)
2,4-D amine	Acadia	5.8	2.6	---	5.6	.0522	(75)
2,4-D amine	Acadia	5.8	2.6	---	11.2	.0139	(75)
2,4-D amine	Acadia	5.8	2.6	---	22.4	.0108	(75)
2,4-D	Acadia	---	---	Arid range	1.03	.1634	(34)
2,4-D		---	---	Arid range	---	.1036	(34)
2,4-D amine	Acadia	5.8	2.6	---	5.7	.0352	(75)
2,4-D isooctyl	Acadia	5.8	2.6	Ester per se	31.4	.2603	(75)
Dicamba	Acadia	5.8	2.6	---	1.1-4.3	.0151	(75)
Diflubenzuron	Lufkin fsl	---	---	Over winter	---	.0040	(9)
Dinitramine	Taloka sl	5.8	2.6	---	.4	.0856	(31)
Diuron	New Ya'ar (dry)	---	---	---	4	4/.136	(28)
Diuron	New Ya'ar (wet)	---	---	---	4	4/.214	(28)
Fluchloralin	Taloka sl	---	---	---	.56	.0169	(31)
Fluometuron	New Ya'ar (dry)	---	---	---	.56	4/.043	(28)
Fluometuron	New Ya'ar (wet)	---	---	---	.56	4/.077	(28)
Isopropalin	Taloka sil	---	---	---	1.68	.1948	(31)
Nitralin	Taloka sil	---	---	---	.56	.1042	(31)
Oryzalin	Taloka	---	---	---	.84	.0284	(31)
Oxmyl	Keyport sil	---	---	---	6.7	.0646	(25)
Oxmyl	Cecil ls	---	---	---	6.7	.0354	(25)
Oxmyl	Leon Immokalee fs	---	---	---	6.7	.0448	(25)
Pendimethalin	Taloka sil	---	---	---	.56	.1695	(25)
				HERBICIDES			
Picloram				Arid range	1.05	.2689	(75)
Picloram						.0712	(34)
Profluralin	Taloka sil	---	---	---	.74	.2434	(31)
Prometryne	Taloka sl	7.2	2	---	---	.0127	(83)
Pronamide	Taloka sl	6.1	2	---	4.5	2/.0203 .0603	(82)
Pronamide	Newport sl	---	---	---	4.5	3/.0173	(81)
Propham	New Ya'ar c (dry)	---	---	---	.56	4/.025	(28)
Propham	New Ya'ar (wet)	---	---	---	.56	4/.279	(28)
Silvex (spray)	Galestown sl	6.7	5.2	Bluegrass	2	.0213	(52)
Silvex (granules)	Galeston	6.7	5.2	Bluegrass	1.3	.0346	(52)
Simazine	Galestown sl	7	2	---	---	.0089	(83)
2,4,5-T (isooctyl)		5.8	2.6	---	1.1-	.0266-	(75)
		---	---	---	4.3	.075	(75)
2,4,5-T		---	---	---		.0674	(34)
2,4,5-T		---	---	Arid range	1.07	.1323	(34)
Trifluralin	Bosket sl	5.8	2.6	Bluegrass	.86-1.12	.0748 4/.0681	(61)
Trifluralin	(Bushland) cl	---	---	Cotton	.56	4/.0299	(69)
Trifluralin	(Lubbuck)	---	---	Cotton	.56	4/.0599	(69)
Trifluralin	Taloka sl	---	1.0	---	.56	.1729	(31)
Trifluralin	Sheep pens (dry)	6.3	2.0	---	---	2/.0071	(87)
Trifluralin	Sheep pens (wet)	---	2.0	---	---	.0956	(87)

Table 4-7.--Values of k_s for dissipation of pesticides from soil surfaces--continued

Pesticide	Soil Type	pH	OM (%)	Crop or conditions	Application rate (kg/ha)	k_s	Reference
				INSECTICIDES			
Aldrin	Coachella fs	---	---	---	20.2	0.2406	(49)
Aldrin (+dieldrin) (granules)	Carrington sil	---	---	---	5.6	2/.0045	(40)
Azinphosmethyl (spray)	Orchard sl	6.6-7.8	3.4	---	---	4/.0486	(73)
Azinphosmethyl (spray)	Orchard sl	6.6-7.8	3.4	---	---	4/.0434	(73)
Carbofuran	Alluvial	6.2	1.6	---	---	.0075	(80)
Carbofuran	Ritzville sil	7.8	1.0	---	2.0	.0690	(19)
Carbofuran	Chehalis c	6.2	7.2	---	2.0	.0180	(19)
Carbofuran	Organic	5.9	4.0	---	2.0	.0048	(19)
Carbofuran	Sultan sil	4.3	3.0	---	2.0	.034	(19)
Carbofuran	Sultan sil	6.0	3.0	---	2.0	.086	(19)
Carbofuran	Sultan sil	6.0	3.0	---	2.0	.0040	(19)
Carbofuran	Sultan sil	6.8	3.0	---	2.0	.0059	(19)
Carbofuran	Sultan sil	7.8	3.0	---	2.0	.0132	(19)
Chlordane	Gullatin Valley	---	---	Alfalfa	2.0	4/.0101	(6)
Chlordane	Gullatin Valley	---	---	Alfalfa	>2	4/.007	(6)
DDT	sl	---	---	---	83	2/.004	(91)
DDT	Choachella fs	---	---	---	22.4	2/.053	(49)
DDT	Houston c	>7	---	---	---	.0060	(2)
DDT	Pima sic	>7	---	---	---	.0049	(2)
DDT	Pinal gl	>7	---	---	---	.0060	(2)
DDT	Blackwater River	<7	---	Forest	1.12	3/.00015	(55)
DDT	Pollard Mountain	<7	---	Forest	1.12	.000023	(55)
DDT	Mosquito Bnk Pod	<7	---	Forest	1.12	.00040	(55)
DDT	Route 11	<7	---	Forest	1.12	4/.00014	(55)
DDT	West Oxbow	<7	---	Forest	1.12	4/.00024	(55)
DDT	Black Mountain	<7	---	Forest	1.12	.00044	(55)
Diazinon	Reaville shl	---	---	---	15.7	3/.1422	(45)
Endrin	Mhoon sicl	6.0	1.2	Sugarcane	---	.0110	(92)
Endrin	Coachella fs	---	---	---	5.4	.2436	(49)
Ethion	Vineyard	---	---	Grapes	1.12	2/.0647	(37)
Ethyl parathion	San Joaquin l	7.2	1.2	Citrus	2.24	.0332 5/(.0725)	(70)
Ethyl parathion	San Joaquin l	7.2	1.2	Citrus	4.48	.0328 5/(.0084)	(70)
Ethyl parathion	San Joaquin l	7.2	1.2	Citrus	8.96	.0282 5/(.0114)	(70)
Hexachlorobenzene	Chewada sl	---	---	Zoysia	---	3/.050	(4)
Methyl parathion	Houston c	>7	---	---	---	.0165	(2)
Methyl parathion	Pima sic	>7	---	---	--	.0153	(2)
Methyl parathion	Pinal gl	>7	---	---	---	.0147	(2)
Parathion	sl	4.7-7.3	1.0-3.4	---	---	3/.0058	(94)
Toxaphene	Galestown sl	6.7	5.2	Cotton	(6x2.7)	.0046	(53)

1/ si = silt; s = san; sh = shale; c = clay; l = loam; f = fine; g = gravelly.
2/ Correlation coefficient r = <-0.8.
3/ Correlation coefficient r = <-0.9.
4/ Correlation coefficient r = unknown.
5/ Paraoxin.

Table 4-8.--Effect of soil type, organic matter content, moisture content, temperature, and pH on dissipation (k_s values) of pesticides in soils

Pesticide	Soil			Temperature											
	Type	pH	OM1/	5°C		10°C		14-15°C		20°C		25°C		28-30°C		40°C	
				SM2/	k_s	SM	k_s	SM	k_s	SM	k_s	SM	k_s	SM	k_s	SM	k_s
				(%)		(%)		(%)		(%)		(%)		(%)		(%)	
Pronamide	Gravel Pits sl	6.1	1.8					11.7	0.0091			4.1	0.0116				
Pronamide	Little Cherry sl	6.9	1.4					12.0	.0099			4.0	.0096				
Pronamide	Soakwaters cl	6.1	1.4					17.8	.0110			6.4	.0124				
Pronamide	Gallas Ley sc	6.9	2.9					16.7	.0062			6.2	.0074				
Pronamide	Water Meadows cl	7.2	5.3					29.5	.0082			14.8	.0142				
Pronamide	Gravel Pits sl	6.1	1.8									11.9	.0217				
Pronamide	Little Cherry sl	6.9	1.4									12.1	.0231				
Pronamide	Soakwaters cl	6.1	1.4									16.3	.0301				
Pronamide	Gallas Ley sl	6.9	2.9									16.7	.0165				
Pronamide	Water Meadows cl	7.2	5.3									29.1	.0198				
Pronamide	Little Cherry sl	6.1	2.0					7.5	.0062					3.5	0.0077		
Pronamide	Little Cherry sl	6.1	2.0											7.5	.0110		
Pronamide	Little Cherry sl	6.1	2.0											10.0	.0127		
Pronamide	Little Cherry sl	6.1	2.0														
Asulam	Regina c	7.7	7.2			20	0.0141	20	.0261	20	0.0440	20	.0590	20	.582	20	0.0774
Asulam	Regina c	7.7	7.2			26	.0290	26	.0397	26	.0564	26	.0723	26	.0596	26	.0792
Asulam	Regina c	7.7	7.2			34	.0358	34	.0504	34	.0981	34	.0957	34	.1052	34	.0814
Asulam	Regina c	7.7	7.2			40	.0386	40	.0525	40	.1127	40	.0970	40	.1174	40	.0868
Linuron	Gravel Pits sl	7.0	2.0	4.0	0.0065	4.0	.0083	4.0	.0.04	4.0	.0122	4.0	.0154	4.0	.0293		
Linuron	Gravel Pits sl	7.0	2.0									8.0	.0165				
Linuron	Gravel Pits sl	7.0	2.0	12.0	.0084	12.0	.0110	12.0	.0131	12.0	.0162	12.0	.0187	12.0	.0193		
Linuron	Gravel Pits sl	7.0	2.0									16.0	.0204				
Simazine	Gravel Pits sl	7.0	2.0	4.0	.0033	4.0	.0050	4.0	.0075	4.0	.0116	4.0	.0173	4.0	.0239		
Simazine	Gravel Pits sl	7.0	2.0									8.0	.0248				
Simazine	Gravel Pits sl	7.0	2.0	12.0	.0056	12.0	.0087	12.0	.0131	12.0	.0204	12.0	.0267	12.0	.0433		
Simazine	Gravel Pits sl	7.0	2.0									16.0	.0301				
Simazine	Gravel Pits sl	7.0	2.0									4.8	.0082				
Simazine	Gravel Pits sl	7.0	2.0					6.6	.0030			6.0	.0091				
Simazine	Gravel Pits sl	7.0	2.0									7.9	.0109				
Simazine	Gravel Pits sl	7.0	2.0									9.7	.0131				
Simazine	Gravel Pits sl	7.0	2.0									10.7	.0149				
Prometryn	Gravel Pits sl	7.0	2.0									11.2	.0176				
Prometryn	Gravel Pits sl	7.0	2.0					11.5	.0062			11.4	.0191				
Prometryn	Gravel Pits sl	7.0	2.0									13.2	.0188				
Prometryn	Gravel Pits sl	7.0	2.0									4.8	.0012				
Prometryn	Gravel Pits sl	7.0	2.0					6.6	0.0014			6.0	0.0029				
Prometryn	Gravel Pits sl	7.0	2.0									7.9	.0084				
Prometryn	Gravel Pits sl	7.0	2.0									9.7	.0152				
Prometryn	Gravel Pits sl	7.0	2.0									10.7	.0167				
Premetryn	Gravel Pits sl	7.0	2.0									11.2	.0234				
Premetryn	Gravel Pits sl	7.0	2.0					11.5	.0062			11.4	.0276				
Premetryn	Gravel Pits sl	7.0	2.0									13.2	.0229				
Carbofuran	sil	4.3	---							---	0.0234						
Carbofuran	sil	6.0	---							---	.0261						
Carbofuran	sil	6.8	---							---	.0421						
Carbofuran	sil	7.8	---							---	.1020						

1/ Organic matter.
2/ Soil moisture.

Source: (19k 68, 82, 83, 84, 85).

Table 4-9.--Values of k_s for dissipation of pesticides in soil

Pesticide	Soil Type		pH	OM (%)	Crop or conditions	Application rate (kg/ha)	k_s	Reference
					FUNGICIDES			
BAS 3460F	Potting Soil				Agonis Flexuosa		0.0822	(3)
Benomyl	Potting Soil				Agonis Flexuosa		.1486	(3)
Benomyl		sl					.0058	(35)
Benomyl		l					.0023	(35)
					HERBICIDES			
Alachlor							.0384	(89)
Amitrole							.0768	(89)
Arsenic acid							<.0064	(89)
Asulam	Regina	c	7.7	4.2	14 May		.0986	(89)
Asulam	Regina	c			12 July		.0519	(86)
Asulam	Regina	c	7.7	4.2	30 July		.0310	(86)
Atrazine		sl	4.8	1.0			.0131	(22)
Atrazine	Regina	c	6.5	2.0			.0063	(22)
Atrazine							.0064	(86)
Atrazine	Norfolk	sl	6.8			~ 5.2	.0133	(47)
Atrazine	Decatur	cl	6.4			~ 5.2	.0149	(47)
Benefin							.0053-.0077	(76)
Benefin							.0077-.0070	(76)
Bifenox	Potting soil mixture				Various	1.7	.142	(36)
Butralin							.0128	(76)
Butralin							.0077	(76)
Cyanazine							.0064	(86)
Di-Allate	Weyburn	l	6.5	6.5	None	2.8	.0138	(66)
Di-Allate	Weyburn	l	7.0	4.5	Laboratory	.65	.0248	(67)
Di-Allate	Regina	c	7.5	4.0	Laboratory	.65	.0180	(67)
Di-Allate	Regina	c	7.8	4.2	None	2.2	.0110	(66)
Dicamba	Asquithse		7.5	3.2	5% moisture	.25	.0197	(65)
Dicamba	Asquithse		7.5	3.2	10% moisture	.25	2/.2140	(65)
Dicamba	Meltfort	sic	5.2	11.7	Various moisture	.25	2/>.2140	(65)
Dicamba	Regina	c	7.7	4.2	25% moisture	.25	.0486	(65)
Dicamba	Regina	c	7.7	4.2	35% moisture	.25	.0902	(66)
Dicamba	Ouachita	cl		3.3	Forest	.3	.0217	(1)
					HERBICIDES			
Dicamba	Ouachita	cl		2.8	Grass	.3	.0407	(1)
Dicamba	Cross Timbers	l		3.8	Forest	.3	.0267	(1)
2,4-D	Cross Timbers	l		3.8	Forest	.6	.1733	(1)
2,4-D acid	Cross Timbers	l					>.0768	(1)
2,4-D	Cross Timbers	l		3.3	Forest	.6	.1386	(1)
2,4-D salt							.0768	(1)
2,4-D	Ouachita	cl		2.8	Grass	.6	.1733	(1)
2,4-D ester							>.0768	(1)
2,4-D isooctyl ester.	Naff	sil		3.2	Laboratory 30°C	15	.2546	(93)
2,4-D	Naff	sil		3.2	Laboratory 10°C	15	.2731	(93)
2,4-D amine	Naff	sil		3.2	Laboratory ^{14}C carboxyl	12.5	.1457	(93)
2,4-D amine	Naff	sil		3.2	Laboratory ^{14}C carboxyl	12.5	.1008	(93)
2,4-D isooctyl ester α amine.	Naff	sil		3.2	Laboratory ^{14}C carboxyl	12.5	.0951	(93)
2,4-D isooctyl ester α amine.	Naff			3.2	Laboratory ^{14}C carboxyl	12.5	.0555	(93)
2,4-D isooctyl ester α amine.				3.2	Laboratory ^{14}C Ring	12.5	.0852	(93)

Table 4-9.--Values of k_s for dissipation of pesticides in soil--continued

Pesticide	Soil Type	pH	OM 1/	Crop or conditions	Application rate	k_s	Reference
			(%)		(kg/ha)		
				HERBICIDES			
2,4-D isooctyl ester α amine.			3.2	Laboratory Ring ^{14}C	12.5	0.0257	(93)
Dichlorprop---------Ouachita	sl		3.3	Forest	.6	.0578	(93)
Dichlorprop---------Ouachita	sl		2.8	Grass	.6	.0866	(93)
Dichlorprop---------Cross Timbers	l		3.8	Forest	.6	.0693	(93)
Dinitramine						.0193	(76)
Dinitramine						.0193	(76)
Diuron--------------Norfolk	cl	6.8			~ 5.2	.0064	(47)
Diuron--------------Decatur	cl	6.4			~ 5.2	.0072	(47)
EPTC----------------Regina	c	7.5	4.0	Laboratory	.65	.0220	(67)
EPTC----------------Weyburn	l	7.0	4.5	Laboratory	.65	.0248	(67)
Fluchloralin						2/.0070	(76)
Fluchloralin						2/.0045	(76)
Isopropalin---------Daummer	sic	6.7	5.1	Various		.0023-	(76)
Osopropalin---------Eisne	sil	7.2	1.6			.0036	(76)
						2/.0054	(76)
						.0040	(76)
Isopropalin---------Ochley	sil	4.7	2.9	Sorghum	1.68	.0304	(59)
Isopropalin---------Ochley	sil	4.7	2.9	Sorghum	3.36	.0214	(59)
Isopropalin---------Bloomfield	fs	6.3	.6	Sorghum	1.12	.0275	(59)
Karbutilate---------cl		6.3	2.2	Rangeland		.0057-	(50)
						.0282	
Karbutilate---------lc		6.2	1.1	Rangeland		.0118	(50)
Linuron				Cropped		3/.0104-	(84)
						.0231	
Linuron----------------ls				Non-cropped		.0047	(84)
Linuron----------------cl		7.0	2.0	Carrots	.85	3/.0280	(17)
Linuron----------------cl		7.0	2.0	None	3.4	3/.0039	(17)
Linuron-------------0-5 cm		7.0	2.0	None	3.4	3/.0061	(17)
MCPA----------------Coarse cl		7.0	2.0	Barley	1.7	3/.1221	(17)
MCPA----------------Coarse cl		7.0	2.0	None	3.4	4/.1070	(17)
Metribuzin						4/.0298	(86)
Metobromuron--------sl		4.8	1.0			.0231	(22)
Metobromuron--------sl		6.5	2.0			.0248	(22)
Monolinuron						.00216	(62)
Monuron-------------Ramona sl				Various	2.24	.0060	(63)
Monuron-------------Ramona sl					4.48	.0075	(63)
Neburon-------------Ramona sl				Various	2.24	.0073	(63)
Neburon-------------Ramona sl				Various	4.48	.0059	(63)
Nitralin						.0062-	(76)
						.0086	
Nitralin						.0096-	(76)
						.0086	
Nitralin------------Ochley sil		4.7	2.9	Sorghum	1.12	.0110	(59)
Nitralin------------Ochley sil		4.7	2.9	Sorghum	1.12	.0079	(59)
Nitralin------------Ochley sil		4.7	2.9	Sorghum	2.24	.0090	(59)
Nitralin------------Ochley sil		4.7	2.9	Sorghum	2.24	.0024	(59)
Nitralin------------Bloomfield	fs	6.3	.6	Sorghum	.56	.0155	(59)
Nitralin------------Bloomfield	fs	6.3	.6	Sorghum	1.12	.0091	(59)
Oryzalin------------Bloomfield	fs					2/.0054-	(76)
						.0083	(76)
Oryzalin						.0144-	(76)
						.0056	(76)
Pebulate------------Regina	c	7.5	4.0	Laboratory	.65	.0396	(67)
Pebulate------------Weyburn	l	7.0	4.5	Laboratory	.65	.0396	(67)
Picloram-------Scot l, oxbows	cl			Various		.0025	(32)
						2/.0083	(76)
						2/.0056	(76)

Table 4-9.--Values of k_s for dissipation of pesticides in soil--continued

Pesticide	Soil: Type	Soil: pH	Soil: OM (%)	Crop or conditions	Application rate (kg/ha)	k_s	Reference
				HERBICIDES			
Pebulate	Regina c	7.5	4.0	Laboratory	.65	0.0396	( )
Pebulate	Weyburn l	7.0	4.5	Laboratory	.65	.0396	(67)
Picloram	Scot l, oxbows cl			Various		.0025	(32)
Picloram	Various					2/.00772	(60)
Picloram	Nova Scotia cl				4.8	.0044	(56)
Picloram	Somerset sl	4.8	2.9	Fallow	4.48	.0050	(56)
Picloram	Farin cl	6.3	1.9	Orchard grass B	2.24	.0354	(44)
Picloram	Chandler f sl	5.5	1.7	Orchard grass	2.24	.0258	(44)
Picloram	Chester l	5.8	1.9	Orchard grass	2.24	.0268	(44)
Picloram	Chester l	5.8	1.9	Orchard grass	4.48	.0269	(44)
Picloram	Various	Various			.05	2/.004	(48)
Picloram	Ouachita cl		3.3	Forest	.6	3/.0019	(1)
Picloram	Ouachita cl		2.8	Grass	.6	.0048	(1)
Picloram	Cross Timbers l		3.8	Forest	.6	.0028	(1)
Profluralin						2/.0047	(76)
Profluralin						2/.0051	(76)
Pometryne	sl	7.0	2.0			.0238	(83)
Propazine	sl	4.8	1.0			.0108	(22)
Propazine		6.5	2.0			.0056	(22)
Propyzamide	c to sl			Lettuce		.0061-4/.0158	(85)
Silvex	Ouachita sl		3.3	Forest	.6	.0330	(1)
Silvex	Ouachita sl		2.8	Grass	.6	.0495	(1)
Silvex	Cross Timbers l		3.8	Forest	.6	.0462	(1)
Simazine		7	2	None	3.4	4/.0074	(17)
Simazine	0 to 5 cm	7	2	None	3.4	.0083	(17)
Simazine	sl	4.8	1.0			.0116	(22)
Simazine	sl	6.5	2.0			.0082	(22)
Simazine				Cropped		.0539	(84)
Simazine				Noncropped		.062	(84)
Simazine	sl	7.0	2.0			.0187	(83)
Tebuthiuron	Various			Corn	.025	.0024	(11)
Tebuthiuron	Houston Black c, Udic Pellustert			In surface runoff water.	2.24	.0060	(5)
Tebuthiuron	Houston Black Udic Pellustert			In surface pellets.	2.24	.0427	(5)
Tebuthiuron	Houston Black Udic Pellustert			In surface Broadcast spray.	2.24	.0201	(5)
Tebuthiuron	Houston Black Udic Pellustert			In pellets	2.24	.0517	(5)
Tebuthiuron	Houston Black Udic Pellustert			In surface band pellets.	2.24	.0624	(5)
Tebuthiuron	Houston Black Udic Pellustert			Broadcast in soil spray.	2.24	.0069	(5)
Triallate	Regina c	7.5	4.0	Laboratory	.65	.0090	(67)
Triallate	Weyburn l	7.0	4.5	Laboratory	.65	.0110	(67)
Triallate	Coarse sl	7.0	2.0	Barley	1.7	3/.0144	(17)
Triallate	Coarse sl	7.0	2.0	None	3.4	3/.0067	(17)
Triallate	Weyburn l	6.5	6.5	None	2.8	.0088	(66)
Triallate	Regina c	7.8	4.2	None	2.2	.0053	(66)
2,4,5-T	Ouachita sl		3.3	Forest	.6	.0289	(1)
2,4,5-T	Ouachita sl		2.8	Grass	.6	.0330	(1)
2,4,5-T	Cross Timbers l		3.8	Forest	.6	.0330	(1)
2,4,5-T	Fanin cl	6.3	1.9	Orchard grass	2.24	3/.0508	(44)
2,4,5-T	Chandler fls	5.5	1.7	Orchard grass	2.24	.0495	(44)

Table 4-9.--Values of k_s for dissipation of pesticides in soil--continued

Pesticide	Soil Type	Soil pH	Soil OM (%)	Crop or conditions	Application rate (kg/ha)	k_s	Reference
				HERBICIDES			
2,4,5-T	Chester l	5.8	1.9	Orchard grass	2.24	3/0.0416	(44)
2,4,5-T	Chester l	5.8	1.9	Orchard grass	4.48	.0414	(44)
Trifluralin						2/.0037-.0047	(76)
Trifluralin						2/.0051-.0044	(76)
Trifluralin	Cecil sl	6.5	.6	Soybeans		.0175	(90)
Trifluralin	Wet soil			None		.0956	(87)
Trifluralin	Dry soil			None		4/.0189	
Trifluralin	Ochley sil	4.7	2.9	Sorghum	.84	.0145	(59)
Trifluralin	Ochley sil	4.7	2.9	Sorghum	.84	.0117	(59)
Trifluralin	Ochley sil	4.7	2.9	Sorghum	1.68	.0104	(59)
Trifluralin	Ochley sil	4.7	2.9	Sorghum	1.68	.0026	(59)
Trifluralin	Bloomfield fs	6.3	.6	Sorghum	.56	.0155	(59)
Trifluralin	Bloomfield fs	6.3	.6	Sorghum	1.12	.0091	(59)
Vernolate	Regina c	7.5	4.0	Laboratory	.65	.0396	(67)
Vernolate	Weyburn l	7.0	4.5	Laboratory	.65	.0396	(67)
				INSECTICIDES			
Aldicarb	Beaumont c	5.4			130	.00273	(78)
Aldicarb	Houston c	7.8			130	.0087	(78)
Aldicarb	Houston cl	7.5	.25	Shendi	.5	3/.0991	(57)
Aldicarb	Houston cl	7.5	.25	Shendi	1.0	.0420	(57)
Aldicarb	Houston cl	7.5	.25	Orange	2.8-22.4	.0322-<.0032	(30)
Aldrin							(86)
Aldrin	Ulysses sil			Fallow	2.24	.0264	(38)
Aldrin	Knox sil			Fallow	2.24	.0259	(38)
Aldrin	Celeryville muck			Fallow	2.24	4/.0014	(38)
Aldrin	Marietta sl			Fallow	2.24	.0136	(38)
Aldrin	Fox fsl			Fallow	2.24	.0256	(38)
Aldrin	Miami sil			Fallow	2.24	.0258	(38)
Aldrin	Muck			Fallow	2.24	4/.0066	(38)
Aldrin	Carrington sil	Nondisked		Fallow	4.5	2/.0101	(38)
Aldrin	Carrington sil	Disked		Fallow	4.5	2/.0136	(42)
Aldrin	Udaipur cl	7.8	1.6	Various	3.0	.0149	(72)
						$\bar{x}$ of 19	(72)
						$\tilde{x}$ of 19	(72)
Aldrin	Jobner	8.6	.26	Various	3.0	.0165	(72)
						$\bar{x}$ of 19	(72)
Aldrin	Muck				22.4	.0061	(41)
Aldrin	Miami sil				22.4	.0096	(41)
Aldrin	Composite				22.4	.0038	(14)
Aldrin (Dieldrin)	Carrington sil	Nondisked			4.5	4/.0006	(42)
Aldrin (Dieldrin)	Carrington sil	Disked			4.5	4/.0008	(42)
Aldrin (Dieldrin)	Carrington sil	Disked		Granules	5.6	4/.0012	(40)
Aldrin (Dieldrin)	Carrington sil			Spray		4/.0017	(40)
Akton	Sultan sil	6.3	3.4	Corn granules	2.24	.0032	(20)
Azinphosmethyl		8.4				.0239	(22)
Azinphosmethyl	Orchard sl	6.6-7.8	3.4			4/,5/.0026	(73)
Azinphosmethyl	Orchard sl	6.6-7.8	3.4			4/,6/.0014	(73)
Azinphosmethyl	Gila sil				.018	.0533	(95)
Azinphosmethyl	Mocha sil					.0273	(29)
Azinphosmethyl	Linne c					.0516	(29)
Azinphosmethyl	Madera sl					.0086	(29)
Azinphosmethyl	Laveen sl					.0119	(29)
Azinphosmethyl	Santa Lucia sill					.0235	(29)

Table 4-9.--Values of k_s for dissipation of pesticides in soil--continued

Pesticide	Soil: Type	Soil: pH	Soil: OM (%)	Crop or conditions	Application rate (kg/ha)	k_s	Reference
				INSECTICIDES			
Azinphosmethyl	Windy l					0.0074	(29)
Azinphosmethyl	fsl					.0101	(29)
Azinphosmethyl	sicl					.0458	(29)
Azinphosmethyl	c					.0505	(29)
Azinphosmethyl	sl					.0211	(29)
BHC						.0021	(86)
BHC	Udaipur	7.8	1.6	Various	5.0	.0140	(72)
BHC						$\bar{x}$ of 19	(72)
BHC	Jobner sl	8.6	.26	Various	5.0	.0098	(72)
						$\bar{x}$ of 19	(72)
BHC alpha	Berwick sl			Vegetables	7.4 BHC	5/.0006	(74)
BHC beta	Berwick sl			Vegetables	7.4 BHC	2/.00015	(74)
BHC gamma	Berwick sl			Vegetables	7.4 BHC	2/.00042	(74)
BHC delta	Berwick sl			Vegetables	7.4 BHC	2/.00036	(74)
Bromophos	Composite					.0198	(77)
Carbaryl						.0768	(86)
Carbaryl	Updaipur cl	7.8	1.6	Various	15.0	.1196	(72)
						$\bar{x}$ of 8	
Carbaryl	Jobner sl	8.6	.26	Various	15.0	.0169	(72)
						$\bar{x}$ of 8	
Carbofuran						.0768	(86)
Carbofuran	Take sil				10.0	.0079	(79)
CGA-12223	sil	4.8	1.0			.0385	(22)
CGA-122237/	sil	6.5	2.2			.0693	(22)
Chlordane	Berwick sl				2.0	2/.00072	(74)
Chlordane	Composite					.0020	(14)
Chlorfenvinphos						.0055	(77)
Diazinon	Composite					.0330	(77)
Diazinon	Sultan sil	6.7	3.1	25°C		.0151	(18)
Diazinon	Sultan sil	6.7	3.1	15°C		.0067	(18)
Diazinon	Sultan sil	4.3	3.1			.0242	(18)
Diazinon	sl	4.8	1.0			.0239	(22)
Diazinon	sl	6.5	2.0			.0239	(22)
Diazinon	sl	6.5	2.0			.0248	(22)
Diazinon	Puyallup sl	5.0	2.1			.0189	(21)
Diazinon	Puget sil	5.4	3.0			.0260	(21)
Diazinon	Chehalis cl	5.6	7.2			.0166	(21)
Diazinon	Organic	5.4	40			.0171	(21)
Dieldrin	Carrington sil	Nondisked		Fallow	4.5	2/.0142	(42)
Dieldrin	Carrington sil	Disked		Fallow	4.5	2/.0187	(42)
Dieldrin						3/.0003	(15)
Dieldrin	Imperial sc	7.8	1.0		20.0	.0002	(12)
Dieldrin	Holtville fsl	7.8	.5		20.0	.0001	(12)
Dieldrin	Composite					.0008	(14)
Dioxacarb	sl	4.8	1.0			.0248	(22)
Dioxacarb	sl	6.5	2.0			.3465	(22)
Dioxathion	fsl					.0156	(29)
Dioxathion	sicl					.0128	(29)
Dioxathion	c					.0141	(29)
Dioxathion	sl					.0229	(29)
p,p'-DDT	Ulysses sil	6.9	1.8	Fallow	9.4	3/.0008	(38)
p,p'-DDT	Knox sil	6.8	.8	Fallow	9.4	3/.0005	(38)
p,p'-DDT	Celeryville muck	4.9	74.5	Fallow	9.4	.0021	(38)
p,p'-DDT	Marietta sl	6.0	2.0	Fallow	9.4	3/.0014	(38)
p,p'-DDT	Fox fsl	7.2	.8	Fallow	9.4	.0009	(38)
p,p'-DDT	Miami sil	7.1	3.6	Fallow	9.4	3/.0004	(38)
p,p'-DDT	Muck	6.8	40.0	Fallow	1.0	.0009	(38)
p,p'-DDT	Commerce sil				24.4	.0037	(91)
p,p'-DDT	Carrington sil	Nondisked			4.5	2/.0024	(42)
p,p'-DDT	Carrington sil	Disked		Fallow	4.5	2/.0048	(42)

Table 4-9.--Values of k_s for dissipation of pesticides in soil--continued

Pesticide	Soil			Crop or conditions	Application rate	k_s	Reference
	Type	pH	OM				
			(%)		(kg/ha)		
				INSECTICIDES			
p,p'-DDT	Miami sil				11.6	0.0003	(39)
p,p'-DDT	Carrington sil	Disked/non-disked		Fallow	4.5	4/.0002	(39)
p,p'-DDT	Muck				11.2	.0011	(41)
p,p'-DDT	Miami sil				11.2	.0029	(41)
p,p'-DDT	Berwick sl				37 DDT	2/.00016	(74)
p,p'-DDT	Composite					.0007	(14)
o,p'-DDT	Berwick sl					2/.00029	(74)
Dimethoate	Composite					.0990	(77)
Disulfoton				Various		.1604	(64)
Endosulfan	Various				1.3	.0162	(46)
Ethion	Mocho sil					.0014	(29)
Ethion	Linne c					.0012	(29)
Ethion	Madera sl					.0009	(29)
Ethion	Laveen sl					.0015	(29)
Ethion	Santa Lucia sil					.0014	(29)
Ethion	Windy l					.0015	(29)
Ethion	fsl					3/.0009	(29)
Ethion	sicl					.0022	(29)
Ethion	c					.0032	(29)
Ethion	sl					.0025	(29)
Fenitrothion	sl	4.8	1.0			.0578	(22)
Fenitrothion	sl	6.5	2.0			.1155	(22)
Fonofos	Take sil	8.5			10	.0158	(79)
Heptachlor	Composite					.0021	(15)
Heptachlor	Composite					.0025	(14)
Heptachlor	Composite					.0028	(7)
Hexachlorobenzene	Chevada			Zoysia		3/.0006	(4)
Isobenzan	Composite					.0050	(7)
Lindane	Imperial sc	7.8	1.0		20	.0022	(12)
Lindane	Hoytville fsl	7.8	.5		20	.0026	(12)
Lindane	Composite					.0017	(14)
Lindane	Gila sil	7.7	.6	None		2/.0046	(13)
Lindane	Miami sil				11.6	.0011	(39)
Lindane	Muck				11.2	.0014	(41)
Lindane	Miami sil				11.2	.0048	(41)
Lindane	Ulysses sil			Fallow	1.12	.0147	(38)
Lindane	Knox sil			None	11.2	.0264	(41)
Lindane	Celeryville muck			None	11.2	.0074	(41)
Lindane	Marietta sl			None	11.2	.0263	(41)
Lindane	Fox fsl			None	11.2	.0264	(41)
Lindane	Miami sil			None	11.2	.0139	(41)
Lindane	Muck			None	11.2	3/.0059	(41)
Malathion	Poygan sicl	7.2		None		2.9173	(33)
Malathion	Kewaune c	6.4		None		2.4618	(33)
Malathion	Ella ls	3.8		None		1.2681	(33)
Malathion	Freestone sl	5.3	1.1	None		.4152	(88)
Malathion	Okolona c	7.4	3.1	None		1.9832	(88)
Malathion	Trinity l	7.1	4.7	None		1.9026	(88)
Mecarbam	Composite					.0495	(77)
Methidathion	sl	4.8	1.0			.0108	(22)
Methidathion	sl	6.5	2.0			.0495	(22)
Methoxychlor		4.8	1.0			.0046	(22)
Methoxychlor		6.5	2.0			.0033	(22)
Methyl Parathion	Carrington l			Radishes	5.6	.2207	(43)
Mevinphos	Sacramento s	5.4	.4		13	.2936	(10)
Parathion	Carrington l			Radishes	5.6	.0248	(43)
Parathion						.056	(16)
Parathion	Mocho sil	7	.6	None		2/.0046	(13)
Parathion	Udaipur cl	7.8	1.6	Various	10	.1239	(72)
						$\bar{x}$ of 8	(72)
Parathion	Jobner sl	8.6	.26	Various	10	.0727	(72)
						$\tilde{x}$ of 7	(72)

Table 4-9.--Values of k_s for dissipation of pesticides in soil--continued

Pesticide	Soil			Crop or conditions	Application rate	k_s	Reference
	Type	pH	OM				
			(%)		(kg/ha)		
				INSECTICIDES			
Parathion	Mocho sil					3/0.1371	(29)
Parathion	Linne c					.1306	(29)
Parathion	Madera sl					3/.0944	(29)
Parathion	Laveen sl					3/.1150	(29)
Parathion	Santa Lucia sil					.0866	(29)
Parathion	fsl	6.8	0.8			.0654	(29)
Parathion	sicl	7.3	2.1			3/.0891	(29)
Parathion	c	7.3	2.3			.2962	(29)
Parathion	sl	7.6	1.8			.2614	(29)
Phenthoate	fls	6.8	.8			.2865	(29)
Phenthoate	sicl	7.3	2.1			.0156	(29)
Phenthoate	c	7.3	2.3			.0141	(29)
Phenthoate	sl	7.6	1.8			.0229	(29)
Phorate	Sacramento much				13	.0040	(10)
Phorate	Sacramento peat				13	2/.0043	(10)
Phorate	Sacramento peat				13	2/.0051	(10)
Phorate	Take sil	8.5			10	3/.0363	(79)
Phorate	Sacramento s				13	4/.0078	(10)
Phorate	Sacramento c				13	.0277	(10)
Zinophos	Sultan sil	6.7	3.1	25½C		3/.0223	(18)
Zinophos	Sultan sil	6.7	3.1	15½C		.0164	(18)
Zinophos	Sultan sil	5.5	3.1			.0144	(18)
Zinophos	Sultan sil	8.1	3.1			.0244	(18)
Zinophos	Sultan sil					.0096	(21)
Zinophos						.0133	(21)
Zinophos						.0206	(21)
Zinophos						.0075	(21)
				NEMATICIDES			
Dichlofenthion	Composite					.0031	(7)
Trichloronate	Composite					.0050	(77)

1/ Organic matter.
2/ Unknown.
3/ r = <-0.9.
4/ 4 = <-0.8.
5/ Emulsifiable concentrate formulation.
6/ Wettable powder formulation
7/ Diethyl (1-iso-propyl-5-chloro-1,2,4-triazolyl-3) phosphorothioate.

Table 4-10.--Parameters and statistical information provided for the relation: K_d = m %OC + b (using all data, no deletion)[1/]

Pesticide	Statistics: Slope, m[2/]	Intercept, b[2/]	Coefficient of determination	F value for the relation[2/]	Mean K_d ± one standard deviation	Number of observations	Authors[3/]	Identification number used in figures
Aldrin- - - - -	.2650	2.52*	0.802	4.05 ns	2.8 ± .16	3	(75)	
Ametryne- - - -	8.14**	-8.1**	.961	8.54**	10.4 ± 5.4	37	(17,47)	1
Atrazine- - - -	1.49**	- .59	.885	378.**	4.3 ± 3.6	51	(3,14,17,20,21,28,31,33, 58,63,72,74)	2
Benefin - - - -	4.22**	5.07+	.815	35.**	16.7 ± 4.3	10	(40)	
Carbofenthion	125.	90.	.164	.39 ns	124. ± 81.	4	(43)	
Chloramben- - -	.164***	.02	.892	66.**	.63 ± .44	10	(33,65)	22
Chlorbromuron	-20.8**	-29.7	.810	21.**	32.9 ± 18.	7	(14,18)	3
Chloroxorun - -	30.4*	44.8	.903	28.*	234. ± 60.	5	(26)	4
Ciodrin - - - -	.5730	4.31+	.932	13.6 ns	6.0 ± .55	3	(44)	
CIPC- - - - - -	9.30**	-9.4**	.833	165.**	8.5 ± 8.7	35	(32)	5
DDT - - - -	2333.*	1690.	.998	444.*	42000. ±4000.	3	(61)	25
Dicamba - - - -	.040**	-.097**	.945	187.**	.077± .061	13	(7,22)	21
Dieldrin- - -	59.1**	325.**	.954	124.**	638. ± 101.	8	(9)	24
Dinitramine - -	2.44**	.64	.727	21.**	7.4 ± 3.2	10	(40)	
Disulfoton- - -	4.55**	15.0**	.881	111.**	43. ± 13.6	17	(13)	6
Diuron- - - - -	9.35**	-7.8**	.787	359.**	14.1 ± 21.3	99	(18,20,26,32,47,49,53,58)	7
Ethion- - - -	70.7	26.2	.416	1.43 ns	45.7 ± 24.	4	(43)	
Fluchloralin- -	1.78*	4.23	.417	5.7**	9.1 ± 4.5	10	(40)	
Fluometuron - -	1.12+	-.47	.977	43.+	2. ± .23	3	(17)	8
Lindane - - - -	20.5**	-24.3**	.879	196.**	57.8 ± 33.	29	(1,39,42,48,51,52,62)	
Linuron - - - -	8.03**	-.83	.907	293.**	30. ± 17.	32	(18,26,28,67)	10
Monuron - - - -	2.20**	-.02	.964	459.**	16. ± 5.3	19	(18,28,30,31,33,59)	11
Oryzalin- - - -	1.63**	-.50	.897	70.**	4.0 ± 1.2	10	(40)	
Parathion - - -	31.20**	-18.5	.913	148**	60.1 ± 36.6	16	(43,59,66)	12
Phorate - - - -	17.5	4.55	.522	2.18 ns	9.4 ± 4.9	4	(43)	
Picloram- - - -	.241**	-.13	.760	117.**	.71 ± .71	39	(16,24)	13
Profluralin - -	5.12**	8.38	.610	12.5**	22.4 ± 8.8	10	(40)	
Prometone - - -	3.12	2.77	.036	1.0 ns	7.2 ± 10.6	29	(31,64)	14
Prometryne- - -	3.97+	2.79	.115	3.9+	8.7 ± 7.8	32	(17,31,64)	15
Propazine - - -	1.14**	.48	.548	33.**	2.1 ± .7	29	(31,64)	16
Pyrazon - - - -	2.49**	-4.70	.975	154.**	22.7 ± 7.9	6	(41)	17
Simazine- - - -	1.72**	-.32	.677	321.**	3.3 ± 4.5	155	(8,31,32,33,54,60,64,73)	18
Trifluralin - -	5.09**	5.21	.748	29.0**	19.2 ± 5.7	10	(40,60)	9
2,4-D - - - - -	.376**	-.65**	.916	283.**	1.36 ± 1.0	28	(17,19,22,24,33,60)	19
2,4,5-T - - - -	.263**	-.65+	.747	32.**	1.7 ± .95	13	(24,56)	20

[1/] K_d = the distribution coefficient of the pesticide between sediment and water phase where (1) the relationship between adsorbed and equilibrium concentrations for different pesticide concentrations are linear, or (2) the distribution is determined at equilibrium solution concentrations of 1.0 mg/l. Percent OC is organic carbon determined directly or by % organic matter ÷ 1.732, the m and b values are the slope and intercept, respectively, as fitted by regression.

[2/] ns or unmarked means not significant; + , * , ** , significant at the 10.5, and 1% level, respectively.

[3/] Coding number refers to References.

Table 4-11.--Parameters and statistical information provided for the relation: K_d = m %OC + b after deleting high K_d values[1/]

Pesticide	Statistics: Slope, m[2/]	Intercept, b[2/]	Coefficient of determination	F value for the relation[2/]	Mean K_d ± one standard deviation	Number of Observations	Identification number used in figures
Aldrin	.2650	2.52*	.802	4.05 ns	2.8 ± .16	3	
Ametryne	2.32*	1.96	.169	6.9*	6.0 ± 3.6	36	1
Atrazine	0.628**	1.33**	.546	58.**	2.9 ± 1.8	50	2
Benefin	4.22**	5.07+	.815	35.**	16.7 ± 4.3	10	
Carbofenthion	125.	90.	.164	.39 ns	124 ± 81.	4	
Choramben	.020	.00	.000	.000	±	9	22
Chlorbromuron	5.52+	5.14	.614	6.4+	18.9 ± 4.7	6	3
Chloroxorun	-30.4	44.8	.903	28.*	234. ± 60.	5	4
Ciodrin	.5703	4.31+	.932	13.6 ns	60. ± 55.	3	
CIPC	2.86**	-.15	.803	122.**	4.3 ± 1.5	32	5
DDT	-2333.	1690.	.998	444.*	42000. ±4000.	3	25
Dicamba	.040**	.097**	.945	187.**	.077± .061	13	21
Dieldrin	-59.1**	325.**	.954	124.**	638. ± 101.	8	24
Dinitramine	2.44**	.64	.727	21.**	7.4 ± 3.2	10	
Disulfoton	6.25**	8.64**	.907	132.**	36.8 ± 9.4	16	6
Diuron	3.34**	.44	.426	67.**	5.4 ± 3.6	92	
Ethion	-70.7	26.2	.416	1.43 ns	45.7 ± 24.	4	
Fluchloralin	1.78*	4.23	.417	5.7**	9.1 ± 4.5	10	
Flumeturon	1.12+	-.47	.977	43.+	2. ± .23	3	8
Lindane	6.52**	5.6**	.720	59.**	21.9 ± 6.9	25	
Linuron	5.57**	5.2	.585	41.**	20.5 ± 15.5	31	10
Monuron	2.36**	-.48	.711	37.**	7.6 ± 5.4	17	11
Oryzalin	1.63**	-.50	.897	70.**	4.0 ± 1.2	10	
Parathion	-24.1**	-8.3	.693	29.4**	33.7 ± 33.7	15	12
Phorate	-17.5	4.55	.522	2.18 ns	9.4 ± 4.9	4	
Picloram	.123**	.14	.206	8.8**	0.39 ± .45	36	13
Profluralin	5.12**	8.38	.610	12.5**	22.4 ± 8.8	10	
Prometone	2.75+	1.6	.115	3.4+	5.5 ± 5.	28	14
Prometryne	3.94**	1.72	.283	11.4**	7.6 ± 4.4	30	15
Propazine	1.14**	.48	.548	33.**	2.1 ± .7	29	16
Pyrazon	.636*	2.11	.770	10.*	4.6 + 1.6	5	17
Symazine	.636**	1.16	.106	18.**	2.3 ± 2.4	151	18
Trifluralin	5.09**	5.21	.784	29.0**	19.2 ± 5.7	10	9
2,4-D	.194**	.01	.736	70.**	.74 ± .5	27	19
2,4,5-T	.606**	.0022	.787	30.**	1.13 ± .65	10	20

[1/] Deleted following visual inspection of scatter diagrams. If the high or dominating K_d values as a group appeared to be of a different statistical population, they were deleted from the analysis.

K_d = the distribution coefficient of the pesticide between sediment and water phase where (1) the relationship between adsorbed and solution equilibrium concentrations as a function of different pesticide concentrations are linear, or (2) the distribution is determined at equilibrium solution concentration of 1.0 mg/l. Percent OC is organic carbon determined directly or by %organic matter ÷ 1.732; the m and b values are the slope and intercept, respectively, as fitted by regression.

References same as those in table 1.

2/ ns or unmarked means not significant; + , * , ** , significant at the 10, 5, and 1% level, respectively.

Table 4-12.--Parameters and statistical information provided for the relation: K_d = m SS (using all data; no deletion)[1/]

Pesticide	Statistics						Identification number used in figures
	Slope, m^2[2/]	Coefficient of determination	F value for the relation[2/]	Mean K_d ± one standard deviation	Number of observations	Authors[3/]	
Aldrin- - - - -	.0107	.782	7.2 ns	2.8 ± 1.6	4	(75)	
Ametryne- - - -	.0581**	.822	166.**	10.4 ±12.1	38	(17,47)	1
Atrazine- - - -	.0127**	.936	496.**	3.0 ± 1.1	36	(17,28,60,64)	2
Benefin - - - -	.0379**	.964	243.**	16.7 ± 3.8	11	(40)	
Carbofenthion -	1.43*	.895	26.*	124. ±52.	5	(43)	
Chlorbromuron -	.1071**	.770	20.**	33. ±25.	8	(17,18)	3
Chloxoruron - -	.333**	.963	105.**	234. ±59.	6	(26)	4
Ciodrin - - - -	.0136+	.872	13.6+	6.0 ± 2.7	4	(44)	
CIPC- - - - - -	.055**	.646	62.**	8.5 ±13.6	36	(32)	5
Dicamba - - - -	.00030**	.815	53.**	.007± .11	14	(7,22)	21
Dieldrin- - - -	1.42**	.990	583.**	49[illegible] ±56.	8	(9)	24
Dinitramine - -	.0177**	.891	73.**	7.4 ± 3.2	11	(40)	
Disulfoton- - -	.0676**	.946	264.**	36.8 ±11.4	17	(13)	6
Diuron- - - - -	.078**	.743	275.**	14.4 ±24.7	97	(18,26,32,47,49,53)	7
Ethion- - - - -	.544**	.961	74.**	46. ±12.	5	(43)	
Fluchloralin- -	.0200**	.865	58.**	9.1 ± 4.1	11	(40)	
Fluometuron - -	.0080**	.989	187.**	2.0 ± .3	4	(17)	8
Lindane - - - -	.1128**	.772	61.**	33.8 ±27.7	20	(1,42)	
Linuron - - - -	.0776**	.926	386.**	30. ±18.	33	(18,26,28,67)	10
Monuron - - - -	.0206**	.943	249.**	12.5 ± 5.5	17	(18,28,30,31)	11
Oryzalin- - - -	.00997**	.896	78.**	3.4 ± 1.8	11	(40)	
Parathion - - -	.252**	.866	97.**	60. ±49.	17	(43,59,66)	12
Phorate - - - -	.114**	.974	112.**	9.4 ± 2.0	5	(43)	
Picloram- - - -	.0021**	.798	87.**	.9 ± .9	24	(16,24)	13
Profluralin - - -	.0502**	.919	102.**	22.5 ± 7.7	11	(40)	
Prometone - - -	.0355	.390	17.9**	7.2 ±10.	30	(31,64)	14
Prometryne- - -	.0417**	.644	56.**	8.7 ± 7.2	33	(17,31,64)	15
Propazine - - -	.0100**	.933	389.**	2.1 ± .6	30	(31,64)	16
Pyrazon - - - -	.023**	.969	157.**	23. ± 9.	7	(41)	17
Simazine- - - -	.0138**	.378	79.**	2.9 ± 4.5	132	(8,31,32,54,64)	18
Tribluralin - -	.0440**	.949	168.**	19.2 ± 5.3	11	(40,60)	9
2,4-D - - - - -	.00178**	.825	118.**	.77 ± .5	27	(17,19,22,24,60)	19
2,4,5-T - - - -	.0029**	.896	69.**	1.8 ± .9	10	(24)	20

[1/] K_d = distribution coefficient defined in previous two tables SS = 100 %OC + 2 %clay + 0.4 %silt + .005 %S or = 100 %OC + 2 %C if sand and silt data not available.

Intercept is 0 in all cases.

[2/] ns or unmarked means not significant; + , * , ** , significant at the 10, 5, and 1% level, respectively.

[3/] Coding number refers to References.

Table4-13.--Parameters and statistical information provided for the relation: K_d = m SS after deleting high K_d values[1/]

Pesticide	Statistics					Identification number used in figures
	Slope, m[2/]	Coefficient of determination	F value for the relation[2/]	Mean K_d ± one standard deviation	Number of observations	
Aldrin- - - - -	.0170	.782	7.2 ns	2.8 ± 1.6	4	
Ametryne- - - -	.0232**	.759	110.**	6. ± 3.6	37	1
Atrazine- - - -	.0127**	.936	532.**	3.0 ± 1.1	36	2
Benefin - - - -	.0379**	.964	243.**	16.7 ± 3.8	11	
Carbofenthion -	1.43*	.895	26.*	124. ±52.	5	
Chlorbromuron -	.0593**	.946	88.**	19. ± 5.	7	3
Chloxoruron - -	.333**	.963	105.**	234. ±59.	6	4
Ciodrin - - - -	.0136+	.873	13.6+	6.0 ± 2.7	4	
CIPC- - - - - -	.0205**	.877	220.**	4.3 ± 1.9	33	5
Dicamba - - - -	.00030**	.815	53.**	.077± .11	14	21
Dieldrin- - - -	1.42**	.990	583.**	493. ±56.	8	24
Dinitramine - -	.0177**	.891	73.**	7.4 ± 3.2	11	
Disulfoton- - -	.0676**	.946	264.**	36.8 ±11.4	17	6
Diuron- - - - -	.0256**	.752	266.**	5.5 ± 3.7	90	
Ethion- - - - -	.544**	.961	74.**	46. ±12.	5	
Fluchloralin- -	.0200**	.865	58.**	9.1 ± 4.1	11	
Fluometuron - -	.0080**	.989	187.**	2.0 ± .3	4	8
Lindane - - - -	.0686**	.954	348.**	23.4 ± 5.6	19	
Linuron - - - -	.0603**	.771	101.**	20.5 ±15.	32	10
Monuron - - - -	.0210**	.813	61.**	8.4 ± 5.7	16	11
Oryzalin- - - -	.00997**	.896	78.**	3.4 ± 1.8	11	
Parathion - - -	.172**	.697	32.**	34 ±38.	16	12
Phorate - - - -	.114**	.974	112.**	9.4 ± 2.0	5	
Picloram- - - -	.0016**	.556	24.**	.4 ± .4	21	13
Profluralin - -	.0502**	.919	102.	22.5 ± 7.7	11	
Prometone - - -	.0270**	.628	46.**	5.5 ± 4.7	29	14
Prometryne- - -	.0365**	.817	134.**	7.6 ± 4.0	32	15
Propazine - - -	.0100**	.933	389.**	2.1 ± .6	30	16
Pyrazon - - - -	.0086**	.906	38.6**	4.6 ± 1.8	6	17
Simazine- - - -	.0112**	.503	129.**	2.3 ± 2.4	129	18
Trifluralin - -	.0440**	.949	168.**	19.2 ± 5.3	11	9
2,4-D - - - - -	.00178**	.835	118.**	.77 ± .5	27	19
2,4,5-T - - - -	.0043**	.891	41.**	.85 ± .54	7	20

[1/] K_d = distribution coefficient defined in previous two tables: SS = 100 %OC + 2 %clay + 0.4 %silt + .005 %S or = 100 %OC + 2 %C if sand and silt data not available.

Intercept is 0 in all cases.

Deleted following visual inspection of scatter diagrams. If the high or dominating K_d values as a group appeared to be of a statistically different population, they were deleted from this analysis.

References same as those listed in table 3.

[2/] ns or unmarked means not significant; + , * , ** , significant at the 10, 5, and 1% level, respectively.

APPENDIX 5 - HYDROLOGY INPUT - OUTPUT

EXAMPLES AND EXPLANATIONS

INPUT

The following is an example or the data needed to run the daily rainfall (Option 1) hydrology component of CREAMS. There are two data files needed, a rainfall file and a parameter file. The development of these files has been explained in chapter 3.

RAINFALL FILE

73	0	0	0	0	0	0	0	0	0	0	1
73	0	0	0	0	0	0	0	0	0	0	2
73	0	0	0	0	0	0	0	0	0	0	3
73	0	0	0	0	0	0	0	0	0	0	4
73	0	0	0	0	0	0	0	0	0	0	5
73	0	0	0	0	0	0	0	0	0	0	6
73	0	0	0	0	0	0	0	0	0	0	7
73	0	0	0	0	0	0	0	0	0	0	8
73	0	0	0	0	0	0	0	0	0	0	9
73	0	0	0	0	0	0	0	0	0	0	10
73	0	0	0	0	0	0	0	0	0	0	11
73	0	0	0	0	0	0	0	0	0	0	12
73	0	0	0	0	0	0	0	0	0	0	13
73	0	0	0	0	0	0	0	0	.48	0	14
73	0	0	.52	.23	0	0	0	4.27	0	0	15
73	0	0	0	0	0	.28	1.22	0	.60	.50	16
73	.25	0	0	.78	0	0	0	0	0	0	17
73	.20	.71	0	0	0	.13	0	0	.38	0	18
73	0	0	0	0	0	0	0	0	1.61	0	19
73	0	0	0	0	.20	0	.05	.45	0	0	20
73	0	0	0	0	0	.34	.07	.06	0	0	21
73	.79	0	0	0	0	0	0	0	0	0	22
73	0	0	0	0	0	0	0	0	0	0	23
73	0	0	0	0	0	0	0	0	0	0	24
73	0	0	0	0	0	.26	0	0	0	0	25
73	0	1.95	.05	0	0	1.24	0	0	0	.42	26
73	0	0	0	0	0	0	0	0	0	.21	27
73	.30	0	.50	0	0	0	0	0	0	0	28
73	0	0	0	0	0	0	0	0	0	0	29
73	0	0	0	0	0	0	0	0	0	0	30
73	0	0	.26	0	0	0	0	0	0	0	31
73	0	0	0	0	0	0	0	0	0	0	32
73	0	0	0	0	.82	0	0	0	.23	.15	33
73	0	.55	0	0	0	0	0	.08	0	1.57	34
73	0	0	0	0	0	0	0	0	.65	.10	35
73	0	0	0	.76	0	0	0	0	.47	.25	36
73	0	0	0	.90	1.95	0	0	0	0	0	37
74	.11	.16	.37	.17	0	0	.34	0	0	0	1
74	.08	0	0	0	0	0	0	0	0	.87	2
74	0	0	0	.24	0	0	0	.10	.26	0	3
74	0	0	0	0	0	0	1.70	.20	0	0	4
74	0	0	0	0	.65	.90	0	0	0	.16	5
74	0	0	.50	0	0	0	0	0	0	0	6
74	0	0	0	0	0	0	0	0	0	0	7
74	0	0	0	0	0	0	0	.15	0	.65	8
74	0	0	0	.35	0	.08	0	.69	0	0	9
74	0	0	0	1.30	0	0	0	0	0	0	10
74	0	.05	.95	0	0	0	0	0	0	0	11
74	0	.30	0	0	0	0	0	0	0	0	12
74	0	.09	0	.35	.74	0	0	0	0	0	13
74	.10	.50	0	0	.10	0	0	0	0	0	14
74	0	0	.26	2.50	0	.28	0	0	0	0	15
74	.50	0	0	0	0	0	0	0	.30	0	16
74	.25	0	0	0	0	0	0	0	0	0	17
74	.48	0	0	0	0	0	0	4.26	0	0	18

RAINFALL FILE

74	0	0	0	0	0	0	0	0	0	0	19
74	0	0	0	0	0	0	0	.11	0	0	20
74	0	0	0	.11	.58	0	.51	2.84	0	0	21
74	0	0	0	0	0	0	.05	0	1.06	0	22
74	0	1.12	0	0	0	.30	0	2.00	.60	0	23
74	0	0	0	0	0	0	0	0	0	0	24
74	.65	0	0	.45	0	.32	0	0	.91	0	25
74	0	0	0	0	0	0	0	0	0	0	26
74	0	0	0	0	0	0	0	.17	0	0	27
74	0	0	0	0	0	0	0	0	0	0	28
74	0	0	0	0	0	0	0	0	.36	0	29
74	0	0	0	0	0	0	0	0	0	0	30
74	0	0	0	0	0	0	0	0	.28	0	31
74	0	0	0	0	.30	0	0	0	0	0	32
74	0	0	0	.58	0	0	0	0	0	0	33
74	0	0	0	0	0	0	0	0	0	0	34
74	.44	0	0	0	0	0	0	0	1.22	0	35
74	0	0	.85	.20	0	0	0	.96	.27	0	36
74	.08	0	.90	0	0	0	0	0	0	0	37
75	0	0	.15	.35	0	0	0	.60	0	1.04	1
75	0	.90	0	0	0	0	0	0	.25	.39	2
75	0	0	.10	1.06	.18	0	0	0	0	0	3
75	0	0	0	.40	1.40	.45	0	0	0	0	4
75	0	.45	0	0	0	0	1.45	1.07	.84	0	5
75	0	0	.01	0	1.10	0	0	0	0	0	6
75	0	0	0	0	0	.35	0	0	.28	.20	7
75	.90	3.72	.70	0	.70	0	1.28	0	0	0	8
75	0	0	1.10	0	0	0	0	0	.55	0	9
75	0	2.55	0	0	0	0	0	0	.20	.05	10
75	.04	0	0	.84	0	0	0	0	0	0	11
75	0	0	0	0	0	0	0	0	0	.25	12
75	.10	0	1.37	0	0	0	1.70	0	0	0	13
75	0	0	0	.70	0	.68	0	0	0	0	14
75	0	0	0	0	0	0	0	0	.10	0	15
75	1.42	0	0	0	0	0	0	0	0	0	16
75	.45	2.80	0	0	0	0	0	0	.05	.25	17
75	0	0	0	0	0	0	0	0	0	0	18
75	0	0	.45	0	0	0	.14	0	0	0	19
75	.35	0	0	1.05	.05	0	.06	.42	0	0	20
75	.05	0	0	0	1.70	0	0	0	.05	.35	21
75	0	0	.35	0	0	.20	0	.17	.20	0	22
75	0	0	0	0	0	0	0	0	0	0	23
75	0	0	0	0	0	0	0	1.17	.25	0	24
75	0	0	0	0	0	0	0	0	.50	.05	25
75	0	0	.38	0	.56	0	0	0	0	2.00	26
75	0	0	0	0	1.43	.45	0	0	0	0	27
75	0	0	0	.35	0	0	0	0	0	0	28
75	0	0	0	0	0	0	0	0	0	0	29
75	0	0	0	0	0	0	0	0	0	0	30
75	0	0	0	0	0	0	0	0	0	0	31
75	0	0	0	0	0	0	0	0	0	0	32
75	0	0	0	0	0	0	0	0	0	0	33
75	0	0	0	0	0	0	0	0	0	0	34
75	0	0	0	0	0	0	0	0	0	0	35
75	0	0	0	0	0	0	0	0	0	0	36

RAINFALL FILE

75 0 0 0 0 0 0 0 0 0 0 37

DAILY HYDROLOGY PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE ONE
CONTINUOUS CORN - CONVENTIONAL TILLAGE

73138	1	0	1	0					
3.2	0.19	0.75	0.50	3.75	0.41	0.17			
0.2	80.0	0.022	2.1	24.0					
0.16	0.82	0.72	0.52	0.61	0.70	0.66			
45.0	47.0	52.0	61.0	70.0	77.0	79.0	78.0	73.0	63.0
51.0	44.0								
218.0	290.0	380.0	488.0	533.0	562.0	532.0	508.0	416.0	344.0
268.0	211.0								
1.0									
1	0								
122	0								
152	0.20								
166	0.20								
183	1.00								
192	2.50								
197	2.60								
202	2.70								
228	2.20								
255	0								
366	0								
0	0	0							
0	0	0							
-1	0	0							

OUTPUT

The output you receive from running the daily rainfall option of the hydrology component of CREAMS can have two forms--annual summary output or storm-by-storm and annual summary output. This is determined by the value input in the hydrology parameter file on card 4 for variable FLGOUT (see chapter 3). Both output forms are preceded by a section of general information regarding the physical properties of the field being studied. Much of this is the same information as was given in the input, EXCEPT the following:

1. "Field Capacity," as shown on the output, is the input parameter FUL from card 5.

2. "Initial Storage Fraction" is the parameter BST from card 5.

3. "Peak Flow Rate Coefficient" and "Peak Flow Rate Exponent" are values calculated by the program.

4. "Upper Limit of Storage" is the total of the UL parameter values that are input on card 7.

5. "Initial Soil Water Storage" is the upper limit of storage multiplied by the BST.

6. "Initial Storage." These seven values are the initial water contents for the seven layers in the soil profile.

Following this section are the results of the computations of the program. The example shown is for storm-by-storm and annual summary output. If only annual summary output is requested, this section would contain just the "annual total for ..." information.

The storm-by-storm output is labeled and dimensional. The value "Average Soil W. IN./IN." includes the "immobile soil water content" as given in the general output section. These values must be multiplied by the rooting depth to get the total water in inches in the profile.

The "Annual Total" output is also labeled, and all the dimensions are in inches.

The last section in the hydrology output uses the annual totals and computes averages and summarizes the output. Some care should be used in interpreting this section. The values labeled "Avg. Aval. Storage" and "Final Aval. Storage" refer to the empty portion of the profile. The seven values labeled "Final Storage for Each Fraction" refer to the soil water in each fraction. A check on these answers would be to add the seven values to "Final Aval. Storage, and this should equal the value for "Upper Limit of Storage" in the general output section. The next values labeled "Minimum Total Storage" and "Maximum Total Storage" are actual minimum and maximum plant available Soil moisture values. The dates associated with these values refer to the first occurrence of the minimum soil moisture and the first occurrence of the maximum soil moisture. The soil moisture may reach these values again during the simulation period, but these dates won't change.

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C R E A M S HYDROLOGY OPTION ONE

(DAILY PRECIPITATION VALUES)

VERSION 1.5 JULY 22,1981 TIFTON GA

DAILY HYDROLOGY PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE ONE
CONTINUOUS CORN - CONVENTIONAL TILLAGE

MONTHLY MEAN TEMPERATURES, DEGREES FAHRENHEIT

43.43	45.64	52.15	61.21	70.39	77.23
79.90	77.69	71.18	62.12	52.94	46.10

MONTHLY MEAN RADIATION, LANGLEYS PER DAY

236.29	291.73	375.07	463.97	534.61	568.07
555.38	499.93	416.60	327.70	257.05	223.60

LEAF AREA INDEX TABLE

DATE	LAI
1	0.0
122	0.0
152	0.20
166	0.20
183	1.00
192	2.50
197	2.60
202	2.70
228	2.20
255	0.0
366	0.0

WINTER C FACTOR = 1.00
LAI-DAYS = 151.15

FIELD AREA	=	3.200	ACRES
ROOTING DEPTH	=	24.000	IN
SATURATED CONDUCTIVITY	=	0.190	IN/HR
FIELD CAPACITY	=	0.750	
INITIAL STORAGE FRACTION	=	0.500	
INITIAL ABSTRACTION	=	0.200	
EVAPORATION COEFFICIENT	=	3.750	
POROSITY	=	0.410	CC/CC
SCS CURVE NUMBER	=	80.000	
CHANNEL SLOPE	=	0.022	
WATERSHED LEN/WIDTH RATIO	=	2.100	
PEAK FLOW RATE COEFFICIENT	=	9.087	
PEAK FLOW RATE EXPONENT	=	0.840	
UPPER LIMIT OF STORAGE	=	4.190	IN
IMMOBILE SOIL WATER CONTENT	=	0.235	IN/IN
INITIAL SOIL WATER STORAGE	=	2.095	IN

UPPER LIMIT OF STORAGES

0.160	0.820	0.720	0.520	0.610	0.700	0.660

INITIAL STORAGE

0.080	0.410	0.360	0.260	0.305	0.350	0.330

DATE JULIAN	RAINFALL INCHES	RUNOFF INCHES	PERCOL. INCHES	AVERAGE TEMP. DEG. F.	AVERAGE SOIL W. IN./IN.	ACTUAL EP INCHES	POTENT. EP INCHES
73139	0.4800	0.0	0.0	70.7321	0.3172	0.0205	0.0205
73143	0.5200	0.0	0.0	71.5336	0.3129	0.0689	0.0689
73144	0.2300	0.0	0.0	72.1846	0.3179	0.0826	0.0826
73148	4.2700	1.5087	1.0145	72.8124	0.3221	0.1437	0.1437
73156	0.2800	0.0	0.0	74.2304	0.3489	0.2888	0.2888
73157	1.2200	0.0970	0.3186	75.2228	0.3664	0.3074	0.3074
73159	0.6000	0.0116	0.1238	75.5321	0.3623	0.3449	0.3449
73160	0.5000	0.0252	0.2041	75.8333	0.3664	0.3637	0.3637
73161	0.2500	0.0	0.0	76.0285	0.3655	0.3826	0.3826
73164	0.7800	0.0284	0.1712	76.4048	0.3591	0.4395	0.4395
73171	0.2000	0.0	0.0	77.2643	0.3485	0.6658	0.6658
73172	0.7100	0.0	0.0	77.8849	0.3596	0.7159	0.7159
73176	0.1300	0.0	0.0	78.2253	0.3428	0.9609	0.9609
73179	0.3800	0.0	0.0	78.6562	0.3311	1.1917	1.1917
73189	1.6100	0.0345	0.0	79.2703	0.3017	2.5631	2.5631
73195	0.2000	0.0	0.0	79.7626	0.2831	3.9715	3.9715
73197	0.0500	0.0	0.0	79.8815	0.2490	4.2954	4.4575
73198	0.4500	0.0	0.0	79.9020	0.2546	4.5187	4.7026
73206	0.3400	0.0	0.0	79.8747	0.2394	4.9642	6.6548
73207	0.0700	0.0	0.0	79.7670	0.2418	5.0454	6.8892
73208	0.0600	0.0	0.0	79.7252	0.2401	5.1084	7.1211
73211	0.7900	0.0	0.0	79.6240	0.2432	5.4039	7.8019
73246	0.2600	0.0	0.0	77.4119	0.2363	5.7520	13.1179
73252	1.9500	0.0895	0.0	73.6355	0.2478	5.7827	13.2769
73253	0.0500	0.0	0.0	72.7926	0.2984	5.7888	13.2830
73256	1.2400	0.1235	0.0	72.2887	0.3039	5.7901	13.2843
73260	0.4200	0.0	0.0	71.3782	0.3195	5.7918	13.2861
73270	0.2100	0.0	0.0	69.4492	0.3108	5.7959	13.2901
73271	0.3000	0.0	0.0	67.8689	0.3126	5.7963	13.2905
73273	0.5000	0.0	0.0	67.4249	0.3179	5.7970	13.2912
73303	0.2600	0.0	0.0	62.5047	0.3012	5.8064	13.3006
73325	0.8200	0.0	0.0	54.6065	0.2906	5.8115	13.3057
73329	0.2300	0.0	0.0	51.0235	0.3118	5.8123	13.3065
73330	0.1500	0.0	0.0	50.3957	0.3176	5.8125	13.3067
73332	0.5500	0.0114	0.0	50.0305	0.3242	5.8129	13.3071
73338	0.0800	0.0	0.0	49.0988	0.3223	5.8140	13.3082
73340	1.5700	0.3168	0.0	48.2166	0.3393	5.8144	13.3086
73349	0.6500	0.0	0.0	47.1283	0.3515	5.8159	13.3101
73350	0.1000	0.0	0.0	46.2245	0.3662	5.8161	13.3103
73354	0.7600	0.0585	0.3942	45.8248	0.3615	5.8168	13.3110
73359	0.4700	0.0	0.1199	45.1762	0.3603	5.8176	13.3118
73360	0.2500	0.0	0.1756	44.7921	0.3664	5.8177	13.3120
73364	0.9000	0.1064	0.4967	44.5133	0.3617	5.8184	13.3126

73365	1.9500	0.8762	0.9996	44.2598	0.3664	5.8186	13.3128

ANNUAL TOTALS FOR 1973

PRECIPITATION	=	27.790
PREDICTED RUNOFF	=	3.288
DEEP PERCOLATION	=	4.018
TOTAL ET	=	19.436
BEGIN SOIL WATER	=	2.095
FINAL SOIL WATER	=	3.142
WATER BUDGET BAL.	=	0.0

DATE JULIAN	RAINFALL INCHES	RUNOFF INCHES	PERCOL. INCHES	AVERAGE TEMP. DEG. F.	AVERAGE SOIL W. IN./IN.	ACTUAL EP INCHES	POTENT. EP INCHES
74001	0.1100	0.0	0.0358	44.0823	0.3664	0.0	0.0
74002	0.1600	0.0	0.0857	44.0015	0.3664	0.0	0.0
74003	0.3700	0.0	0.2956	43.9259	0.3664	0.0	0.0
74004	0.1700	0.0	0.0955	43.8555	0.3664	0.0	0.0
74007	0.3400	0.0	0.1156	43.7323	0.3632	0.0	0.0
74011	0.0800	0.0	0.0	43.5660	0.3593	0.0	0.0
74020	0.8700	0.0105	0.1626	43.4426	0.3487	0.0	0.0
74024	0.2400	0.0	0.0	43.5169	0.3605	0.0	0.0
74028	0.1000	0.0	0.0	43.6840	0.3559	0.0	0.0
74029	0.2600	0.0	0.0	43.8283	0.3621	0.0	0.0
74037	1.7000	0.2655	0.7940	44.1900	0.3521	0.0	0.0
74038	0.2000	0.0	0.1085	44.6290	0.3664	0.0	0.0
74045	0.6500	0.0	0.0835	45.1264	0.3558	0.0	0.0
74046	0.9000	0.1765	0.6243	45.6823	0.3664	0.0	0.0
74050	0.1600	0.0	0.0	46.0771	0.3582	0.0	0.0
74053	0.5000	0.0	0.0182	46.6726	0.3573	0.0	0.0
74078	0.1500	0.0	0.0	49.6676	0.3397	0.0	0.0
74080	0.6500	0.0	0.0	53.0365	0.3402	0.0	0.0
74084	0.3500	0.0	0.0	53.8764	0.3487	0.0	0.0
74086	0.0800	0.0	0.0	54.7347	0.3513	0.0	0.0
74088	0.6900	0.0	0.1148	55.3181	0.3577	0.0	0.0
74094	1.3000	0.1433	0.5365	56.5085	0.3547	0.0	0.0
74102	0.0500	0.0	0.0	58.6435	0.3501	0.0	0.0
74103	0.9500	0.0357	0.2315	60.0386	0.3664	0.0	0.0
74112	0.3000	0.0	0.0	61.6024	0.3503	0.0	0.0
74122	0.0900	0.0	0.0	64.5616	0.3425	0.0005	0.0005
74124	0.3500	0.0	0.0	66.4016	0.3413	0.0030	0.0030
74125	0.7400	0.0	0.0	66.8539	0.3652	0.0050	0.0050
74131	0.1000	0.0	0.0	67.8920	0.3517	0.0285	0.0285
74132	0.5000	0.0	0.0	68.9132	0.3598	0.0343	0.0343
74135	0.1000	0.0	0.0	69.4829	0.3522	0.0553	0.0553
74143	0.2600	0.0	0.0	70.9955	0.3431	0.1378	0.1378
74144	2.5000	0.6419	0.9731	72.1846	0.3664	0.1509	0.1509
74146	0.2800	0.0	0.0	72.5645	0.3595	0.1791	0.1791
74151	0.5000	0.0	0.0	73.4203	0.3523	0.2608	0.2608
74159	0.3000	0.0	0.0	74.8936	0.3433	0.4044	0.4044

74161	0.2500	0.0	0.0	75.9309	0.3376	0.4409	0.4409
74171	0.4800	0.0	0.0	77.0064	0.3279	0.7179	0.7179
74178	4.2600	1.2540	1.2568	78.2836	0.3221	1.1581	1.1581
74198	0.1100	0.0	0.0	79.4856	0.2880	3.5846	4.7379
74204	0.1100	0.0	0.0	79.8933	0.2358	3.6539	6.2027
74205	0.5800	0.0	0.0	79.8346	0.2520	3.8414	6.4397
74207	0.5100	0.0	0.0	79.7852	0.2506	4.1820	6.9062
74208	2.8400	0.5856	0.0	79.7252	0.3385	4.4115	7.1357
74217	0.0500	0.0	0.0	79.4193	0.2843	6.2366	9.0877
74219	1.0600	0.0	0.0	78.9679	0.2602	6.5177	9.4931
74222	1.1200	0.0	0.0	78.7028	0.2714	7.0943	10.0818
74226	0.3000	0.0	0.0	78.2790	0.2688	7.8425	10.8299
74228	2.0000	0.1593	0.0	77.8717	0.2867	8.1648	11.1832
74229	0.6000	0.0296	0.0	77.6512	0.3334	8.3298	11.3483
74241	0.6500	0.0	0.0	76.5465	0.2829	9.6992	12.7555
74244	0.4500	0.0	0.0	75.0976	0.2637	9.8887	12.9512
74246	0.3200	0.0	0.0	74.5564	0.2616	9.9865	13.0493
74249	0.9100	0.0	0.0	73.9899	0.2615	10.0692	13.1500
74268	0.1700	0.0	0.0	71.2047	0.2544	10.1190	13.2013
74289	0.3600	0.0	0.0	65.4411	0.2406	10.1190	13.2013
74309	0.2800	0.0	0.0	59.0907	0.2389	10.1190	13.2013
74315	0.3000	0.0	0.0	55.1483	0.2419	10.1190	13.2013
74324	0.5800	0.0	0.0	53.0203	0.2467	10.1190	13.2013
74341	0.4400	0.0	0.0	49.7144	0.2537	10.1190	13.2013
74349	1.2200	0.0170	0.0	47.0314	0.2622	10.1190	13.2013
74353	0.8500	0.0224	0.0	45.9824	0.3011	10.1190	13.2013
74354	0.2000	0.0	0.0	45.5943	0.3274	10.1190	13.2013
74358	0.9600	0.0755	0.0	45.2419	0.3288	10.1190	13.2013
74359	0.2700	0.0	0.0	44.9136	0.3599	10.1190	13.2013
74361	0.0800	0.0	0.0	44.7338	0.3569	10.1190	13.2013
74363	0.9000	0.0945	0.4334	44.5108	0.3601	10.1190	13.2013

ANNUAL TOTALS FOR 1974

PRECIPITATION	=	40.260
PREDICTED RUNOFF	=	3.511
DEEP PERCOLATION	=	5.965
TOTAL ET	=	30.932
BEGIN SOIL WATER	=	3.142
FINAL SOIL WATER	=	2.994
WATER BUDGET BAL.	=	0.0

DATE JULIAN	RAINFALL INCHES	RUNOFF INCHES	PERCOL. INCHES	AVERAGE TEMP. DEG. F.	AVERAGE SOIL W. IN./IN.	ACTUAL EP INCHES	POTENT. EP INCHES
75003	0.1500	0.0	0.0	44.1251	0.3587	0.0	0.0
75004	0.3500	0.0	0.0771	43.8555	0.3664	0.0	0.0
75008	0.6000	0.0	0.3005	43.7059	0.3617	0.0	0.0
75010	1.0400	0.1898	0.6992	43.5634	0.3648	0.0	0.0
75012	0.9000	0.1270	0.6209	43.4968	0.3648	0.0	0.0
75019	0.2500	0.0	0.0	43.4354	0.3558	0.0	0.0

75020	0.3900	0.0	0.0614	43.4526	0.3664	0.0	0.0
75023	0.1000	0.0	0.0	43.5005	0.3611	0.0	0.0
75024	1.0600	0.1640	0.6738	43.5663	0.3664	0.0	0.0
75025	0.1800	0.0	0.0981	43.6081	0.3664	0.0	0.0
75034	0.4000	0.0	0.0	43.9139	0.3526	0.0	0.0
75035	1.4000	0.3058	0.7749	44.3158	0.3664	0.0	0.0
75036	0.4500	0.0149	0.3453	44.4151	0.3664	0.0	0.0
75042	0.4500	0.0	0.0	44.8098	0.3570	0.0	0.0
75047	1.4500	0.2151	0.7220	45.5384	0.3567	0.0	0.0
75048	1.0700	0.2676	0.7010	45.9935	0.3664	0.0	0.0
75049	0.8400	0.1475	0.5900	46.1561	0.3664	0.0	0.0
75053	0.0100	0.0	0.0	46.5852	0.3564	0.0	0.0
75055	1.1000	0.0838	0.4781	47.1312	0.3574	0.0	0.0
75066	0.3500	0.0	0.0	48.4680	0.3487	0.0	0.0
75069	0.2800	0.0	0.0	50.0524	0.3496	0.0	0.0
75070	0.2000	0.0	0.0	50.5410	0.3577	0.0	0.0
75071	0.9000	0.0927	0.4664	50.7909	0.3664	0.0	0.0
75072	3.7200	2.3958	1.1905	51.0439	0.3664	0.0	0.0
75073	0.7000	0.0876	0.4771	51.3001	0.3664	0.0	0.0
75075	0.7000	0.0384	0.3861	51.6904	0.3635	0.0	0.0
75077	1.2800	0.2649	0.7330	52.2205	0.3634	0.0	0.0
75083	1.1000	0.0817	0.4290	53.3169	0.3556	0.0	0.0
75089	0.5500	0.0	0.0	55.0280	0.3552	0.0	0.0
75092	2.5500	0.9198	1.1498	56.3568	0.3594	0.0	0.0
75099	0.2000	0.0	0.0	57.8743	0.3511	0.0	0.0
75100	0.0500	0.0	0.0	59.1054	0.3486	0.0	0.0
75101	0.0400	0.0	0.0	59.4159	0.3471	0.0	0.0
75104	0.8400	0.0140	0.1102	60.0388	0.3522	0.0	0.0
75120	0.2500	0.0	0.0	63.0062	0.3456	0.0	0.0
75121	0.1000	0.0	0.0	65.6416	0.3410	0.0	0.0
75123	1.3700	0.1202	0.3951	66.0985	0.3532	0.0015	0.0015
75127	1.7000	0.3820	0.7667	67.0028	0.3585	0.0107	0.0107
75134	0.7000	0.0	0.0	68.6206	0.3544	0.0477	0.0477
75136	0.6800	0.0268	0.2284	69.9051	0.3626	0.0635	0.0635
75149	0.1000	0.0	0.0	71.9059	0.3453	0.2261	0.2261
75151	1.4200	0.1003	0.2986	73.7786	0.3506	0.2608	0.2608
75161	0.4500	0.0	0.0	75.1010	0.3477	0.4409	0.4409
75162	2.8000	1.0711	1.0668	76.2195	0.3664	0.4592	0.4592
75169	0.0500	0.0	0.0	76.9310	0.3494	0.6324	0.6324
75170	0.2500	0.0	0.0	77.5886	0.3429	0.6729	0.6729
75183	0.4500	0.0	0.0	78.5065	0.3176	1.6175	1.6175
75187	0.1400	0.0	0.0	79.3668	0.2854	2.2129	2.2129
75191	0.3500	0.0	0.0	79.6272	0.2570	2.9488	3.0567
75194	1.0500	0.0	0.0	79.7873	0.2539	3.4026	3.7684
75195	0.0500	0.0	0.0	79.8504	0.2641	3.6428	4.0086
75197	0.0600	0.0	0.0	79.8815	0.2510	4.0088	4.4934
75198	0.4200	0.0	0.0	79.9020	0.2549	4.2356	4.7379
75201	0.0500	0.0	0.0	79.9078	0.2435	4.5427	5.4792
75205	1.7000	0.0425	0.0	79.8678	0.2505	4.8426	6.4488
75209	0.0500	0.0	0.0	79.7434	0.2658	5.7244	7.3792
75210	0.3500	0.0	0.0	79.6257	0.2558	5.9398	7.6055
75213	0.3500	0.0	0.0	79.5033	0.2467	6.3114	8.2692
75216	0.2000	0.0	0.0	79.2829	0.2415	6.5319	8.9098
75218	0.1700	0.0	0.0	79.0647	0.2392	6.6355	9.3240
75219	0.2000	0.0	0.0	78.9183	0.2429	6.7178	9.5271

75238	1.1700	0.0	0.0	77.5806	0.2376	6.9409	12.5646
75239	0.2500	0.0	0.0	75.9142	0.2753	7.0345	12.6583
75249	0.5000	0.0	0.0	74.7606	0.2488	7.3696	13.2313
75250	0.0500	0.0	0.0	73.5222	0.2492	7.3829	13.2542
75253	0.3800	0.0	0.0	73.0381	0.2470	7.3977	13.2681
75255	0.5600	0.0	0.0	72.4163	0.2543	7.3977	13.2881
75260	2.0000	0.1536	0.0	71.5093	0.2630	7.3977	13.2881
75265	1.4300	0.1744	0.0	70.1567	0.3113	7.3977	13.2881
75266	0.4500	0.0114	0.0	69.3169	0.3546	7.3977	13.2881
75274	0.3500	0.0	0.0	68.0109	0.3396	7.3977	13.2881

ANNUAL TOTALS FOR 1975

PRECIPITATION	=	48.250
PREDICTED RUNOFF	=	7.492
DEEP PERCOLATION	=	13.840
TOTAL ET	=	28.603
BEGIN SOIL WATER	=	2.994
FINAL SOIL WATER	=	1.309
WATER BUDGET BAL.	=	0.0

AVERAGE ANNUAL VALUES

PRECIPITATION	=	38.767
PREDICTED RUNOFF	=	4.764
DEEP PERCOLATION	=	7.941
TOTAL ET	=	26.324

AVG. AVAL. STORAGE = 2.265 IN
FINAL AVAL. STORAGE = 2.881 IN

FINAL STORAGE FOR EACH FRACTION

0.0	0.0	0.0	0.113	0.457	0.525	0.213

MINIMUM TOTAL STORAGE WAS 0.0 ON 73203
MAXIMUM TOTAL STORAGE WAS 3.144 ON 75134

C R E A M S HYDROLOGY SUMMARY

VERSION 1.5 TIFTON GA JULY 22, 1981

DAILY HYDROLOGY PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE ONE
CONTINUOUS CORN - CONVENTIONAL TILLAGE

1973

MONTH	RAIN	RUNOFF	ET	PERC	AVG SW

JAN	0.0	0.0	0.0	0.0	0.0
FEB	0.0	0.0	0.0	0.0	0.0
MAR	0.0	0.0	0.0	0.0	0.0
APR	0.0	0.0	0.0	0.0	0.0
MAY	5.500	1.509	2.286	1.015	2.162
JUN	5.050	0.162	4.834	0.818	2.698
JUL	3.570	0.035	5.228	0.0	0.697
AUG	0.0	0.0	0.329	0.0	0.010
SEP	4.930	0.213	2.572	0.0	1.343
OCT	0.260	0.0	0.962	0.0	1.575
NOV	1.750	0.011	0.997	0.0	1.523
DEC	6.730	1.358	2.228	2.186	2.798
TOT	27.790	3.288	19.436	4.018	1.067

1974

MONTH	RAIN	RUNOFF	ET	PERC	AVG SW
JAN	2.700	0.010	2.157	0.791	2.923
FEB	4.110	0.442	2.270	1.628	2.875
MAR	1.920	0.0	1.618	0.115	2.544
APR	2.600	0.179	1.991	0.768	2.735
MAY	5.420	0.642	3.374	0.973	2.746
JUN	5.290	1.254	3.153	1.257	2.351
JUL	4.150	0.586	4.726	0.0	0.901
AUG	5.780	0.189	6.441	0.0	0.971
SEP	1.850	0.0	2.199	0.0	0.458
OCT	0.360	0.0	0.555	0.0	0.096
NOV	1.160	0.0	0.782	0.0	0.282
DEC	4.920	0.209	1.666	0.433	1.484
TOT	40.260	3.511	30.932	5.965	1.697

1975

MONTH	RAIN	RUNOFF	ET	PERC	AVG SW
JAN	5.020	0.481	2.321	2.531	2.977
FEB	7.170	1.035	2.460	3.611	2.920
MAR	9.780	2.961	2.930	3.682	2.864
APR	3.930	0.934	2.173	1.260	2.717
MAY	6.070	0.629	3.123	1.689	2.772
JUN	3.550	1.071	2.996	1.067	2.480
JUL	4.670	0.043	6.013	0.0	0.616
AUG	2.340	0.0	2.194	0.0	0.165
SEP	5.370	0.339	2.984	0.0	1.200
OCT	0.350	0.0	0.816	0.0	2.157
NOV	0.0	0.0	0.329	0.0	1.721
DEC	0.0	0.0	0.262	0.0	1.431

TOT	48.250	7.492	28.603	13.840	2.002

ANNUAL AVERAGES

MONTH	RAIN	RUNOFF	ET	PERC	AVG SW
JAN	2.573	0.164	1.493	1.107	1.966
FEB	3.760	0.492	1.577	1.747	1.932
MAR	3.900	0.987	1.516	1.266	1.802
APR	2.177	0.371	1.388	0.676	1.817
MAY	5.663	0.927	2.928	1.225	2.560
JUN	4.630	0.829	3.661	1.047	2.510
JUL	4.130	0.221	5.323	0.0	0.738
AUG	2.707	0.063	2.988	0.0	0.382
SEP	4.050	0.184	2.585	0.0	1.000
OCT	0.323	0.0	0.778	0.0	1.276
NOV	0.970	0.004	0.703	0.0	1.175
DEC	3.883	0.522	1.386	0.873	1.905
TOT	38.767	4.764	26.324	7.941	1.589

APPENDIX 6 - EROSION/SEDIMENT YIELD

INPUT-OUTPUT

EXAMPLES AND EXPLANATIONS

INPUT

To run the erosion/sediment yield component of the CREAMS model requires two data files. One is usually computer generated from the hydrology component (pass file) and one is user developed (parameter file). The user developed file is a list of the parameters that represents the physical conditions and changes of the field being studied. This is the file that represents conservation and cultural practices. To evaluate alternative agricultural management systems, it is necessary to develop a parameter file to represent each system and run each of those with the same precipitation file. The hydrology parameter file will change if the practices affect any of the hydrology parameters such as LN or length-width ratio.

The development of the parameter files has been explained in chapter 4.

This example parameter file will evaluate the overland-channel sequence of erosion FLGSEQ 3 (card 4). This would simulate a field with a concentrated flow area.

EROSION PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE ONE
CONTINUOUS CORN - CONVENTIONAL TILLAGE

```
73000       1       0       0       3

 0.14    0.20    0.66    0.01    20.0     4.0     0.05  1000.0
  3.2   206.0  0.0267   0.020   0.038   0.024     98.0     3.5   156.0     1.3
    1
  1.0    0.23
    5       1       1       4       1
 20.0    10.0    0.03   0.002   2.410    2.25     0.0
371.0     3.2     0.2    20.0
  0.0   0.024    69.0   0.018   154.0   0.014   269.0   0.032   325.0   0.021
        73105
    1       1       1
    1    0.26
    1       1
    1    0.03
    1       1       1       1       1       1
    0   0.065
    0    0.40
    0     100
    0    0.33
    0    0.33
    0      10
        73121
    1       0       1
    1    0.40
    1    0.03
    1       1       0       1       1       0
    0    0.04
    0    0.15
    0    0.33
    0    0.33
        73150
    1       0       1
    1    0.62
    1    0.01
    1       1       0       1       1       0
    0    0.03
    0    0.10
    0    0.33
    0    0.33
        73165
    1       0       0
    1    0.54
    0       0       0       1       1       0
    0    0.33
    0    0.33
        73180
    1       0       0
    1    0.42
    0       0       0       1       1       0
    0    0.33
    0    0.33
```

```
      73200
1        0        0
1     0.20
0        1        0        0        0        0
0     0.20
      73274
0        0        0
0        1        0        0        0        0
0     0.30
      73365
1        0        1
1     0.20
1     0.04
1        0        0        0        0        0
0    0.065
      74105
1        0        1
1     0.26
1     0.03
0        1        0        0        0        0
0     0.40
      74121
1        0        1
1     0.40
1     0.03
1        1        0        1        1        0
0     0.04
0     0.15
0     0.33
0     0.33
      74150
1        0        1
1     0.62
1     0.01
1        1        0        1        1        0
0     0.03
0     0.10
0     0.33
0     0.33
      74165
1        0        0
1     0.54
0        0        0        1        1        0
0     0.33
0     0.33
      74180
1        0        0
1     0.42
0        0        0        1        1        0
0     0.33
0     0.33
      74200
1        0        0
1     0.20
0        1        0        0        0        0
```

```
0    0.20
     74274
0       0        0
0       1        0        0        0        0
0    0.30
     74365
1       0        1
1    0.20
1    0.04
1       0        0        0        0        0
0    0.065
     75105
1       0        1
1    0.26
1    0.03
0       1        0        0        0        0
0    0.40
     75121
1       0        1
1    0.40
1    0.03
1       1        0        1        1        0
0    0.04
0    0.15
0    0.33
0    0.33
     75150
1       0        1
1    0.62
1    0.01
1       1        0        1        1        0
0    0.03
0    0.10
0    0.33
0    0.33
     75165
1       0        0
1    0.54
0       0        0        1        1        0
0    0.33
0    0.33
     75180
1       0        0
1    0.42
0       0        0        1        1        0
0    0.33
0    0.33
     75200
1       0        0
1    0.20
0       1        0        0        0        0
0    0.20
     75274
0       0        0
0       1        0        0        0        0
```

```
0     0.30
      75365
1        0        1
1     0.20
1     0.04
1        0        0        0        0        0
0    0.065
            0
```

EROSION/SEDIMENT PARAMETER FILE

This example parameter file will evaluate the overland-channel-channel sequence FLGSEQ 4 (card 4). This is used to evaluate a terrace system where the first channel is the terrace channel and the second channel is the grassed waterway or diversion into which the terrace channel flows.

FILE

EROSION PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE TWO
CONTINUOUS CORN - CONVENTIONAL TILLAGE

```
73000       2        0        0        4
 0.14     0.20     0.66     0.01     20.0      4.0      0.05   1000.0
 0.41   100.0    0.0270    0.027    0.027    0.027     100.0      0.0    100.0       0.0
    1
  1.0     0.23
    1        1        2        2        1
  20.      10.    0.03     0.02     2.41     2.25      0.0
 180.     0.41     0.0     20.0
   0.    0.005
    5        1        1        4        1
 20.0     10.0     0.03    0.002    2.410     2.25      0.0
400.0      3.2      0.2     20.0
  0.0    0.024     69.0    0.018    154.0    0.014    269.0    0.032    325.0     0.021
          73105
    1        1        1
    1     0.26
    1     0.55
    1     0.03
    1        1        1        1        1        1
    0    0.065
    0     0.40
    0      100
    0     0.33
    0     0.33
    0       10
    1        1        1        1        1        1
    0     0.04
    0     0.40
    0     100.
    0     0.33
    0     0.33
    0     10.0
          73121
    1        0        1
    1     0.40
    1     0.03
    1        1        0        1        1        0
    0     0.04
    0     0.15
    0     0.33
    0     0.33
    0        0        0        0        0        0
          73150
    1        0        1
    1     0.62
    1     0.01
    1        1        0        1        1        0
    0     0.03
    0     0.10
    0     0.33
    0     0.33
```

```
0       0       0       0       0       0
      73165
1       0       0
1     0.54
0       0       0       1       1       0
0     0.33
0     0.33
0       0       0       0       0       0
      73180
1       0       0
1     0.42
0       0       0       1       1       0
0     0.33
0     0.33
1       0       0       0       0       0
0      .03
      73200
1       0       0
1     0.20
0       1       0       0       0       0
0     0.20
0       0       0       0       0       0
      73274
0       0       0
0       1       0       0       0       0
0     0.30
0       0       0       0       0       0
      73365
1       0       1
1     0.20
1     0.04
1       0       0       0       0       0
0    0.065
0       0       0       0       0       0
      74105
1       0       1
1     0.26
1     0.03
0       1       0       0       0       0
0     0.40
1       0       0       0       0       0
0      .04
      74121
1       0       1
1     0.40
1     0.03
1       1       0       1       1       0
0     0.04
0     0.15
0     0.33
0     0.33
0       0       0       0       0       0
      74150
1       0       1
1     0.62
```

```
1     0.01
1        1        0        1        1        0
0     0.03
0     0.10
0     0.33
0     0.33
0        0        0        0        0        0
      74165
1        0        0
1     0.54
0        0        0        1        1        0
0     0.33
0     0.33
0        0        0        0        0        0
      74180
1        0        0
1     0.42
0        0        0        1        1        0
0     0.33
0     0.33
0        0        0        0        0        0
      74200
1        0        0
1     0.20
0        1        0        0        0        0
0     0.20
1        0        0        0        0        0
0     .03
      74274
0        0        0
0        1        0        0        0        0
0     0.30
0        0        0        0        0        0
      74365
1        0        1
1     0.20
1     0.04
1        0        0        0        0        0
0     0.065
0        0        0        0        0        0
      75105
1        0        1
1     0.26
1     0.03
0        1        0        0        0        0
0     0.40
1        0        0        0        0        0
0     .04
      75121
1        0        1
1     0.40
1     0.03
1        1        0        1        1        0
0     0.04
0     0.15
```

```
0     0.33
0     0.33
0        0        0        0        0        0
      75150
1        0        1
1     0.62
1     0.01
1        1        0        1        1        0
0     0.03
0     0.10
0     0.33
0     0.33
0        0        0        0        0        0
      75165
1        0        0
1     0.54
0        0        0        1        1        0
0     0.33
0     0.33
0        0        0        0        0        0
      75180
1        0        0
1     0.42
0        0        0        1        1        0
0     0.33
0     0.33
0        0        0        0        0        0
      75200
1        0        0
1     0.20
0        1        0        0        0        0
0     0.20
1        0        0        0        0        0
0      .03
      75274
0        0        0
0        1        0        0        0        0
0     0.30
0        0        0        0        0        0
      75365
1        0        1
1     0.20
1     0.04
1        0        0        0        0        0
0    0.065
0        0        0        0        0        0
         0
```

This example parameter file will evaluate the overland-channel-pond sequence of erosion FLGSEQ 5 (card 4). This is used to evaluate a tile outlet terrace system where the pond is the <u>temporary</u> ponding at the entrance of the tile outlet.

FILE

EROSION PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE THREE
CONTINUOUS CORN - CONVENTIONAL TILLAGE

```
73000       3       0       0       5
 0.14    0.20    0.66    0.01    20.0     4.0     0.05  1000.0
 3.2   206.0  0.0267   0.020   0.033   0.024     98.0     3.5   156.0      1.
    1
  1.0    0.23
    5       1       1       4       1
 20.0    10.0    0.03   0.002   2.410    2.25     0.0
371.0     3.2     0.2    20.0
  0.0   0.024    69.0   0.018   154.0   0.014   269.0   0.032   325.0    0.0
    1       1
  3.2     0.2     0.2   0.024    0.01                    3.0
        73105
    1       1       1
    1    0.26
    1       1
    1    0.03
    1       1       1       1       1       1
    0   0.065
    0    0.40
    0     100
    0    0.33
    0    0.33
    0      10
        73121
    1       0       1
    1    0.40
    1    0.03
    1       1       0       1       1       0
    0    0.04
    0    0.15
    0    0.33
    0    0.33
        73150
    1       0       1
    1    0.62
    1    0.01
    1       1       0       1       1       0
    0    0.03
    0    0.10
    0    0.33
    0    0.33
        73165
    1       0       0
    1    0.54
    0       0       0       1       1       0
    0    0.33
    0    0.33
        73180
    1       0       0
    1    0.42
    0       0       0       1       1       0
```

```
0     0.33
0     0.33
      73200
1        0          0
1     0.20
0        1          0          0          0          0
0     0.20
      73274
0        0          0
0        1          0          0          0          0
0     0.30
      73365
1        0          1
1     0.20
1     0.04
1        0          0          0          0          0
0    0.065
      74105
1        0          1
1     0.26
1     0.03
0        1          0          0          0          0
0     0.40
      74121
1        0          1
1     0.40
1     0.03
1        1          0          1          1          0
0     0.04
0     0.15
0     0.33
0     0.33
      74150
1        0          1
1     0.62
1     0.01
1        1          0          1          1          0
0     0.03
0     0.10
0     0.33
0     0.33
      74165
1        0          0
1     0.54
0        0          0          1          1          0
0     0.33
0     0.33
      74180
1        0          0
1     0.42
0        0          0          1          1          0
0     0.33
0     0.33
      74200
1        0          0
```

```
1     0.20
0        1        0        0        0        0
0     0.20
      74274
0        0        0
0        1        0        0        0        0
0     0.30
      74365
1        0        1
1     0.20
1     0.04
1        0        0        0        0        0
0     0.065
      75105
1        0        1
1     0.26
1     0.03
0        1        0        0        0        0
0     0.40
      75121
1        0        1
1     0.40
1     0.03
1        1        0        1        1        0
0     0.04
0     0.15
0     0.33
0     0.33
      75150
1        0        1
1     0.62
1     0.01
1        1        0        1        1        0
0     0.03
0     0.10
0     0.33
0     0.33
      75165
1        0        0
1     0.54
0        0        0        1        1        0
0     0.33
0     0.33
      75180
1        0        0
1     0.42
0        0        0        1        1        0
0     0.33
0     0.33
      75200
1        0        0
1     0.20
0        1        0        0        0        0
0     0.20
      75274
```

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```
0        0        0
0        1        0        0        0        0
0      0.30
       75365
1        0        1
1      0.20
1      0.04
1        0        0        0        0        0
0     0.065
         0
```

OUTPUT

The output you receive from the erosion/sediment yield component of CREAMS can have several formats, depending on the "FLGOUT" and "FLGSEG" values used on card 4 of the parameter file.

The first section of all erosion/sediment yield output is a series of values titled "Initial Constants." Distribution of primary particles and organic matter in the original soil mass, particle specifications, particle composition, overland inputs, channel inputs, and pond inputs. These are values that were input with the parameter file.

The next section of the output is the results of the programs computation of erosion and sediment yield. The value labeled "Average Soil Loss for Area" will be the sediment yield at the point being considered. This may be a total for the entire field or it may be for a segment of the field, depending on how detailed you want your output. It should be noted that if you do request detailed output by segments, the "Average Soil Loss for Area" for the last segment in the sequence you use will be the total sediment yield from the entire field. Remember that the program considers erosion, sediment transport and deposition as it simulates natural happenings.

The following is an example of the output from the erosion/sediment yield component of CREAMS. This output is for FLGSEQ 3 overland-channel (card 4) with FLGOUT 01 monthly and annual summary output (also CARD 4).

C R E A M S NONPOINT SOURCE POLLUTION MODEL (EROSION/SEDIMENT YIELD)

VERSION 1.5 JUL 22,1981 TIFTON GA

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EROSION PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE ONE
CONTINUOUS CORN - CONVENTIONAL TILLAGE

INITIAL CONSTANTS

STARTING DATE FOR THIS RUN	73000	JULIAN DATE
WT. DENSITY SOIL (IN PLACE)	96.0	LBSF/FT**3
WT. WATER DENSITY	62.4	LBSF/FT**3
MASS WATER DENSITY	1.94	SLUGS/FT**3
ACC. DUE TO GRAVITY	32.2	FT/SEC**2
KINEMATIC VISCOSITY	0.121E-04	FT**2/SEC
MANNING N BARE SOIL (OVER)	0.010	
MANNING N BARE SOIL (CHAN)	0.030	
CHANNEL ERODIBILITY FACTOR	0.135	
(LBS/FT**2 SEC)/(LBS/FT**2)**1.05		
YALIN CONSTANT (ALL PART.)	0.635	
MOMENTUM COEFF. FOR NONUNIFORM VELOCITY IN CROSS SECTION	1.56	(NO UNITS)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ORIGINAL SOIL MASS

TYPE	FRACTION	SPECIFIC SURFACE
		(M**2/G OF SOIL)
CLAY	0.140	20.000
SILT	0.200	4.000
SAND	0.660	0.050
		(M**2/G OF ORGANIC CARBON)
ORGANIC MATTER	0.010	1000.000

(ORGANIC CARBON = ORGANIC MATTER/1.73)

INDEX OF SPECIFIC SURFACE 9.38 M**2/G OF TOTAL SOIL

PARTICLE SPECIFICATIONS

TYPE NO.	DIA. MM	EQSAND DIA. MM	FALL VEL. FT/SEC	SPGRAV. GM/CM**3	FRAC. IN DETACH. SED.
1	0.002	0.002	0.102E-04	2.60	0.03
2	0.010	0.010	0.263E-03	2.65	0.03
3	0.030	0.020	0.125E-02	1.80	0.23
4	0.280	0.158	0.542E-01	1.60	0.27
5	0.200	0.201	0.759E-01	2.65	0.45

PARTICLE COMPOSITION

TYPE NO.	PRIMARY PARTICLE FRACTIONS CLAY	SILT	SAND	ORGANIC MATTER

1	1.000	0.0	0.0	0.071
2	0.0	1.000	0.0	0.0
3	0.412	0.588	0.0	0.029
4	0.070	0.153	0.777	0.005
5	0.0	0.0	1.000	0.0

OVERLAND INPUTS

OVERLAND AREA	3.2000	ACRES
SLOPE LENGTH	206.00	FT
MAXIMUM ELEVATION	5.50	FT
AVERAGE SLOPE	0.0267	
SLOPE OF UPPER END	0.0200	
SLOPE OF MID SECTION	0.0380	
SLOPE OF LOWER END	0.0240	

THE SLOPE IS A CONVEX CONCAVE

LOCATION OF UNIFORM SECTION
DISTANCE,ELEVATION 98.0, 3.5
DISTANCE,ELEVATION 156.0, 1.3
DISTANCE MEASURED FROM THE UPPER END
ELEVATION MEASURED ABOVE LOWEST POINT

CHANNEL INPUTS

CHANNEL LENGTH	371.00	FT
DRAINAGE AREA UPPER END	0.2000	ACRES
EFFCT. LENGTH UPPER END	24.73	FT
DRAINAGE AREA LOWER END	3.2000	ACRES
EFFCT. LENGTH LOWER END	395.73	FT
MANNING N FOR BARE SOIL	0.030	
SOIL ERODIBILITY FACTOR	0.13	

A TRIANGULAR SHAPED CHANNEL

ENERGY GRADELINE
USES THE ENERGY GRADELINE CURVES

RATING CURVE CONTROL

Q = RA*(Y-YBASE)**RN
RA = 2.410
RN = 2.250
YBASE = 0.0

MONTHLY SUMMARY FOR MAY, 1973

4 STORMS PRODUCED 5.50 IN. OF RAINFALL
1 STORMS PRODUCED 1.51 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

TYPE	LBS.	LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	1014.	0.0578	0.0009	926.
2	933.	0.0532	0.0009	853.
3	7875.	0.4489	0.0072	7195.
4	2555.	0.1456	0.0023	2334.
5	2786.	0.1588	0.0025	2545.
TOTAL	15162.	0.8644	0.0139	13853.

AVERAGE SOIL LOSS FOR AREA 2.37 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.293
SILT	0.393
SAND	0.315
ORGANIC MATTER	0.021

INDEX OF SPECIFIC SURFACE 19.36 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.065

MONTHLY SUMMARY FOR JUN. 1973

10 STORMS PRODUCED 5.05 IN. OF RAINFALL
4 STORMS PRODUCED 0.17 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	101.	0.0512	0.0008	820.
2	60.	0.0407	0.0007	653.
3	570.	0.2887	0.0046	4627.
4	64.	0.0326	0.0005	522.
5	19.	0.0098	0.0002	157.
TOTAL	835.	0.4230	0.0068	6779.

AVERAGE SOIL LOSS FOR AREA 0.13 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.407
SILT	0.510
SAND	0.083

INDEX OF SPECIFIC SURFACE 26.72 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.850

MONTHLY SUMMARY FOR JUL, 1973

8 STORMS PRODUCED 3.57 IN. OF RAINFALL
1 STORMS PRODUCED 0.03 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	25.	0.0716	0.0011	1147.
2	20.	0.0580	0.0009	929.
3	109.	0.3131	0.0050	5017.
4	3.	0.0085	0.0001	137.
5	0.	0.0001	0.0000	2.
TOTAL	157.	0.4512	0.0072	7232.

AVERAGE SOIL LOSS FOR AREA 0.02 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.446
SILT	0.539
SAND	0.015
ORGANIC MATTER	0.032

INDEX OF SPECIFIC SURFACE 29.13 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 3.106

MONTHLY SUMMARY FOR SEP, 1973

8 STORMS PRODUCED 4.93 IN. OF RAINFALL
2 STORMS PRODUCED 0.21 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	53.	0.0218	0.0003	349.
2	49.	0.0201	0.0003	323.
3	400.	0.1640	0.0026	2628.

4	32.	0.0132	0.0008	211.
5	7.	0.0029	0.0000	47.
TOTAL	541.	0.2220	0.0036	3557.

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AVERAGE SOIL LOSS FOR AREA 0.08 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.406
SILT	0.534
SAND	0.059
ORGANIC MATTER	0.029

INDEX OF SPECIFIC SURFACE 26.76 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.854

MONTHLY SUMMARY FOR OCT. 1973

1 STORMS PRODUCED 0.26 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR NOV. 1973

4 STORMS PRODUCED 1.75 IN. OF RAINFALL
1 STORMS PRODUCED 0.01 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	2.	0.0144	0.0002	231.
2	0.	0.0004	0.0000	7.
3	0.	0.0008	0.0000	13.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	2.	0.0156	0.0003	251.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION

TYPE	FRACTION
CLAY	0.938
SILT	0.059
SAND	0.003
ORGANIC MATTER	0.067

INDEX OF SPECIFIC SURFACE 56.55 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 6.031

MONTHLY SUMMARY FOR DEC. 1973

9 STORMS PRODUCED 6.73 IN. OF RAINFALL
4 STORMS PRODUCED 1.37 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	75.	0.0047	0.0001	76.
2	58.	0.0036	0.0001	58.
3	426.	0.0268	0.0004	429.
4	119.	0.0075	0.0001	120.
5	18.	0.0012	0.0000	19.
TOTAL	697.	0.0438	0.0007	702.

AVERAGE SOIL LOSS FOR AREA 0.11 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.372
SILT	0.469
SAND	0.159
ORGANIC MATTER	0.027

INDEX OF SPECIFIC SURFACE 24.42 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.604

ANNUAL SUMMARY FOR 1973

44 STORMS PRODUCED 27.79 IN. OF RAINFALL
13 STORMS PRODUCED 3.30 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)

1	1270.	0.0331	0.0005	531.
2	1141.	0.0298	0.0005	477.
3	9380.	0.2447	0.0039	3922.
4	2773.	0.0723	0.0012	1159.
5	2831.	0.0739	0.0012	1184.
TOTAL	17395.	0.4538	0.0073	7272.

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AVERAGE SOIL LOSS FOR AREA 2.72 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.306
SILT	0.407
SAND	0.287
ORGANIC MATTER	0.022

INDEX OF SPECIFIC SURFACE 20.24 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.159

MONTHLY SUMMARY FOR JAN. 1974

10 STORMS PRODUCED 2.70 IN. OF RAINFALL
1 STORMS PRODUCED 0.01 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	4.	0.0352	0.0006	563.
2	0.	0.0010	0.0000	16.
3	0.	0.0018	0.0000	29.
4	0.	0.0000	0.0000	1.
5	0.	0.0001	0.0000	1.
TOTAL	4.	0.0380	0.0006	609.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.943
SILT	0.055
SAND	0.002
ORGANIC MATTER	0.067

INDEX OF SPECIFIC SURFACE 38.82 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 6.059

MONTHLY SUMMARY FOR FEB. 1974

6 STORMS PRODUCED 4.11 IN. OF RAINFALL
2 STORMS PRODUCED 0.45 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	49.	0.0093	0.0001	149.
2	45.	0.0086	0.0001	138.
3	284.	0.0544	0.0009	872.
4	34.	0.0065	0.0001	105.
5	0.	0.0001	0.0000	1.
TOTAL	413.	0.0789	0.0013	1265.

AVERAGE SOIL LOSS FOR AREA 0.06 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.408
SILT	0.527
SAND	0.065
ORGANIC MATTER	0.029

INDEX OF SPECIFIC SURFACE 26.81 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.859

MONTHLY SUMMARY FOR MAR. 1974

5 STORMS PRODUCED 1.92 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR APR. 1974

4 STORMS PRODUCED 2.60 IN. OF RAINFALL
2 STORMS PRODUCED 0.18 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	36.	0.0171	0.0003	275.
2	17.	0.0080	0.0001	128.
3	85.	0.0406	0.0007	650.
4	2.	0.0012	0.0000	19.
5	0.	0.0001	0.0000	1.
TOTAL	140.	0.0670	0.0011	1074.

AVERAGE SOIL LOSS FOR AREA 0.02 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.507
SILT	0.479
SAND	0.015
ORGANIC MATTER	0.036

INDEX OF SPECIFIC SURFACE 32.54 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 3.470

MONTHLY SUMMARY FOR MAY, 1974

10 STORMS PRODUCED 5.42 IN. OF RAINFALL
1 STORMS PRODUCED 0.64 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	388.	0.0522	0.0008	836.
2	356.	0.0479	0.0008	767.
3	2964.	0.3987	0.0064	6390.
4	713.	0.0959	0.0015	1536.
5	845.	0.1137	0.0018	1822.
TOTAL	5266.	0.7083	0.0114	11352.

AVERAGE SOIL LOSS FOR AREA 0.82 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.315

SAND	0.266
ORGANIC MATTER	0.022

INDEX OF SPECIFIC SURFACE 20.82 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.220

MONTHLY SUMMARY FOR JUN, 1974

4 STORMS PRODUCED 5.29 IN. OF RAINFALL
1 STORMS PRODUCED 1.25 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	722.	0.0497	0.0008	796.
2	664.	0.0458	0.0007	733.
3	5605.	0.3860	0.0062	6186.
4	1815.	0.1250	0.0020	2004.
5	2255.	0.1553	0.0025	2489.
TOTAL	11062.	0.7618	0.0122	12209.

AVERAGE SOIL LOSS FOR AREA 1.73 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.285
SILT	0.383
SAND	0.331
ORGANIC MATTER	0.020

INDEX OF SPECIFIC SURFACE 18.89 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.015

MONTHLY SUMMARY FOR JUL, 1974

5 STORMS PRODUCED 4.15 IN. OF RAINFALL
1 STORMS PRODUCED 0.59 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	87.	0.0127	0.0002	203.

3	692.	0.1010	0.0016	1619.
4	455.	0.0664	0.0011	1065.
5	636.	0.0928	0.0015	1488.
TOTAL	1951.	0.2847	0.0046	4562.

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AVERAGE SOIL LOSS FOR AREA 0.31 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.207
SILT	0.286
SAND	0.507
ORGANIC MATTER	0.015

INDEX OF SPECIFIC SURFACE 13.77 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.469

MONTHLY SUMMARY FOR AUG. 197[illegible]

7 STORMS PRODUCED 5.78 IN. OF RAINFALL
2 STORMS PRODUCED 0.19 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	44.	0.0201	0.0003	322.
2	41.	0.0185	0.0003	297.
3	345.	0.1562	0.0025	2503.
4	115.	0.0519	0.0008	832.
5	75.	0.0338	0.0005	542.
TOTAL	619.	0.2806	0.0045	4496.

AVERAGE SOIL LOSS FOR AREA 0.10 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.314
SILT	0.422
SAND	0.264
ORGANIC MATTER	0.022

INDEX OF SPECIFIC SURFACE 20.76 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.214

MONTHLY SUMMARY FOR SEP. 1974

4 STORMS PRODUCED 1.85 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR OCT. 1974

1 STORMS PRODUCED 0.36 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR NOV. 1974

3 STORMS PRODUCED 1.16 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR DEC. 1974

8 STORMS PRODUCED 4.92 IN. OF RAINFALL
4 STORMS PRODUCED 0.21 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	33.	0.0137	0.0002	219.
2	7.	0.0027	0.0000	43.
3	20.	0.0081	0.0001	129.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	1.
TOTAL	60.	0.0245	0.0004	392.

AVERAGE SOIL LOSS FOR AREA 0.01 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.694

SAND	0.002
ORGANIC MATTER	0.050

INDEX OF SPECIFIC SURFACE 43.01 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 4.586

ANNUAL SUMMARY FOR 1974

67 STORMS PRODUCED 40.26 IN. OF RAINFALL
14 STORMS PRODUCED 3.52 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	1363.	0.0333	0.0005	534.
2	1210.	0.0296	0.0005	474.
3	9996.	0.2445	0.0039	3918.
4	3135.	0.0767	0.0012	1229.
5	3812.	0.0932	0.0015	1494.
TOTAL	19515.	0.4773	0.0076	7649.

AVERAGE SOIL LOSS FOR AREA 3.05 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.292
SILT	0.388
SAND	0.320
ORGANIC MATTER	0.021

INDEX OF SPECIFIC SURFACE 19.31 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.059

MONTHLY SUMMARY FOR JAN. 1975

10 STORMS PRODUCED 5.02 IN. OF RAINFALL
3 STORMS PRODUCED 0.48 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	48.	0.0085	0.0001	137.

2	59.	0.0073	0.0002	123.
3	264.	0.0473	0.0008	758.
4	27.	0.0048	0.0001	77.
5	0.	0.0000	0.0000	1.
TOTAL	377.	0.0677	0.0011	1085.

AVERAGE SOIL LOSS FOR AREA 0.06 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.418
SILT	0.526
SAND	0.056
ORGANIC MATTER	0.030

INDEX OF SPECIFIC SURFACE 27.45 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.927

MONTHLY SUMMARY FOR FEB. 1975

9 STORMS PRODUCED 7.17 IN. OF RAINFALL
6 STORMS PRODUCED 1.04 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	105.	0.0087	0.0001	139.
2	83.	0.0068	0.0001	110.
3	574.	0.0476	0.0008	762.
4	74.	0.0061	0.0001	98.
5	1.	0.0001	0.0000	1.
TOTAL	836.	0.0692	0.0011	1109.

AVERAGE SOIL LOSS FOR AREA 0.13 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.414
SILT	0.516
SAND	0.070
ORGANIC MATTER	0.030

INDEX OF SPECIFIC SURFACE 27.16 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.896

MONTHLY SUMMARY FOR MAR. 1975

10 STORMS PRODUCED 9.78 IN. OF RAINFALL
6 STORMS PRODUCED 2.96 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	325.	0.0094	0.0002	151.
2	278.	0.0081	0.0001	130.
3	2287.	0.0665	0.0011	1066.
4	1477.	0.0430	0.0007	688.
5	640.	0.0186	0.0003	298.
TOTAL	5006.	0.1456	0.0023	2333.

AVERAGE SOIL LOSS FOR AREA 0.78 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.274
SILT	0.369
SAND	0.357
ORGANIC MATTER	0.020

INDEX OF SPECIFIC SURFACE 18.13 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 1.934

MONTHLY SUMMARY FOR APR. 1975

6 STORMS PRODUCED 3.93 IN. OF RAINFALL
2 STORMS PRODUCED 0.93 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	80.	0.0074	0.0001	119.
2	70.	0.0065	0.0001	104.
3	595.	0.0551	0.0009	883.
4	124.	0.0115	0.0002	184.
5	26.	0.0024	0.0000	39.
TOTAL	896.	0.0829	0.0013	1329.

AVERAGE SOIL LOSS FOR AREA 0.14 TONS/ACRE
(AREA = 3.2000 ACRES)

pg 6-32

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.373
SILT	0.490
SAND	0.137
ORGANIC MATTER	0.027

INDEX OF SPECIFIC SURFACE 24.59 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.622

MONTHLY SUMMARY FOR MAY, 1975

7 STORMS PRODUCED 6.07 IN. OF RAINFALL
4 STORMS PRODUCED 0.63 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	361.	0.0494	0.0008	791.
2	327.	0.0447	0.0007	717.
3	2661.	0.3636	0.0058	5827.
4	482.	0.0659	0.0011	1056.
5	419.	0.0572	0.0009	917.
TOTAL	4250.	0.5808	0.0093	9308.

AVERAGE SOIL LOSS FOR AREA 0.66 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.351
SILT	0.463
SAND	0.187
ORGANIC MATTER	0.025

INDEX OF SPECIFIC SURFACE 23.14 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.467

MONTHLY SUMMARY FOR JUN, 1975

4 STORMS PRODUCED 3.55 IN. OF RAINFALL
1 STORMS PRODUCED 1.07 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	601.	0.0484	0.0008	775.
2	553.	0.0445	0.0007	714.
3	4662.	0.3751	0.0060	6011.
4	1452.	0.1168	0.0019	1873.
5	1799.	0.1448	0.0023	2320.
TOTAL	9068.	0.7296	0.0117	11692.

AVERAGE SOIL LOSS FOR AREA 1.42 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.289
SILT	0.388
SAND	0.323
ORGANIC MATTER	0.021

INDEX OF SPECIFIC SURFACE 19.14 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.042

MONTHLY SUMMARY FOR JUL. 197?

11 STORMS PRODUCED 4.67 IN. OF RAINFALL
1 STORMS PRODUCED 0.04 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	27.	0.0583	0.0009	934.
2	25.	0.0534	0.0009	855.
3	140.	0.3003	0.0048	4812.
4	4.	0.0094	0.0002	151.
5	0.	0.0001	0.0000	2.
TOTAL	196.	0.4214	0.0068	6754.

AVERAGE SOIL LOSS FOR AREA 0.03 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.433
SILT	0.549
SAND	0.018
ORGANIC MATTER	0.031

INDEX OF SPECIFIC SURFACE 28.43 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 3.031

MONTHLY SUMMARY FOR AUG, 1973

6 STORMS PRODUCED 2.34 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

MONTHLY SUMMARY FOR SEP, 1975

7 STORMS PRODUCED 5.37 IN. OF RAINFALL
3 STORMS PRODUCED 0.33 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	68.	0.0178	0.0003	285.
2	62.	0.0161	0.0003	258.
3	522.	0.1362	0.0022	2182.
4	210.	0.0548	0.0009	878.
5	159.	0.0415	0.0007	664.
TOTAL	1021.	0.2663	0.0043	4268.

AVERAGE SOIL LOSS FOR AREA 0.16 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.292
SILT	0.393
SAND	0.316
ORGANIC MATTER	0.021

INDEX OF SPECIFIC SURFACE 19.31 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.059

MONTHLY SUMMARY FOR OCT. 1975

1 STORMS PRODUCED 0.35 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

ANNUAL SUMMARY FOR 1975

71 STORMS PRODUCED 48.25 IN. OF RAINFALL
26 STORMS PRODUCED 7.48 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	1615.	0.0186	0.0003	298.
2	1437.	0.0165	0.0003	265.
3	11705.	0.1347	0.0022	2159.
4	3851.	0.0443	0.0007	710.
5	3044.	0.0350	0.0006	561.
TOTAL	21651.	0.2492	0.0040	3993.

AVERAGE SOIL LOSS FOR AREA 3.39 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.310
SILT	0.412
SAND	0.279
ORGANIC MATTER	0.022

INDEX OF SPECIFIC SURFACE 20.47 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.183

C R E A M S NONPOINT SOURCE POLLUTION MODEL (EROSION/SEDIMENT YIELD)

VERSION 1.5 JUL 22, 1981 TIFTON GA

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EROSION PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE ONE
CONTINUOUS CORN - CONVENTIONAL TILLAGE

STORM SUMMARY

182 STORMS PRODUCED 116.30 IN. OF RAINFALL
53 STORMS PRODUCED 14.30 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF
VALUES FOR ALL STORMS

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBF	PPM (WT)
1	4248.	0.0256	0.0004	410.
2	3788.	0.0228	0.0004	365.
3	31080.	0.1871	0.0030	2999.
4	9759.	0.0587	0.0009	941.
5	9687.	0.0583	0.0009	935.
TOTAL	58561.	0.3525	0.0056	5650.

TOTAL SOIL LOSS FOR AREA 9.16 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.303
SILT	0.402
SAND	0.295
ORGANIC MATTER	0.022

INDEX OF SPECIFIC SURFACE 20.02 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.134

This example output is for FLGSEQ 4 overland-channel-channel and FLGOUT 2, storm B1 storm and both types of summary output. This shows the results of 1973.

C R E A M S NONPOINT SOURCE POLLUTION MODEL (EROSION/SEDIMENT YIELD)

VERSION 1.5 JUL 22,1981 TIFTON GA

EROSION PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE TWO
CONTINUOUS CORN - CONVENTIONAL TILLAGE

INITIAL CONSTANTS

STARTING DATE FOR THIS RUN	73000	JULIAN DATE
WT. DENSITY SOIL (IN PLACE)	96.0	LBSF/FT**3
WT. WATER DENSITY	62.4	LBSF/FT**3
MASS WATER DENSITY	1.94	SLUGS/FT**3
ACC. DUE TO GRAVITY	32.2	FT/SEC**2
KINEMATIC VISCOSITY	0.121E-04	FT**2/SEC
MANNING N BARE SOIL (OVER)	0.010	
MANNING N BARE SOIL (CHAN)	0.030	
CHANNEL ERODIBILITY FACTOR	0.135	
(LBS/FT**2 SEC)/(LBS/FT**2)**1.05		
YALIN CONSTANT (ALL PART.)	0.635	
MOMENTUM COEFF. FOR NONUNIFORM VELOCITY IN CROSS SECTION	1.56	(NO UNITS)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ORIGINAL SOIL MASS

TYPE	FRACTION	SPECIFIC SURFACE
		(M**2/G OF SOIL)
CLAY	0.140	20.000
SILT	0.200	4.000
SAND	0.660	0.050
		(M**2/G OF ORGANIC CARBON)
ORGANIC MATTER	0.010	1000.000

(ORGANIC CARBON = ORGANIC MATTER/1.73)

INDEX OF SPECIFIC SURFACE 9.38 M**2/G OF TOTAL SOIL

PARTICLE SPECIFICATIONS

TYPE NO.	DIA. MM	EQSAND DIA. MM	FALL VEL. FT/SEC	SPGRAV. GM/CM**3	FRAC. IN DETACH. SED.
1	0.002	0.002	0.102E-04	2.60	0.03
2	0.010	0.010	0.263E-03	2.65	0.03

3	0.030	0.020	0.125E-02	1.30	0.23
4	0.280	0.158	0.542E-01	1.60	0.27
5	0.200	0.201	0.759E-01	2.65	0.45

PARTICLE COMPOSITION

TYPE NO.	PRIMARY PARTICLE FRACTIONS CLAY	SILT	SAND	ORGANIC MATTER
1	1.000	0.0	0.0	0.071
2	0.0	1.000	0.0	0.0
3	0.412	0.588	0.0	0.029
4	0.070	0.153	0.777	0.005
5	0.0	0.0	1.000	0.0

OVERLAND INPUTS

OVERLAND AREA	0.4100	ACRES
SLOPE LENGTH	100.00	FT
MAXIMUM ELEVATION	2.70	FT
AVERAGE SLOPE	0.0270	
SLOPE OF UPPER END	0.0270	
SLOPE OF MID SECTION	0.0270	
SLOPE OF LOWER END	0.0270	

THE SLOPE IS UNIFORM THROUGHOUT

CHANNEL INPUTS

CHANNEL LENGTH	180.00	FT
DRAINAGE AREA UPPER END	0.0	ACRES
EFFCT. LENGTH UPPER END	0.0	FT
DRAINAGE AREA LOWER END	0.4100	ACRES
EFFCT. LENGTH LOWER END	180.00	FT
MANNING N FOR BARE SOIL	0.030	
SOIL ERODIBILITY FACTOR	0.135	

A TRIANGULAR SHAPED CHANNEL

ENERGY GRADELINE
SLOPE OF ENERGY GRADELINE = SLOPE OF CHANNEL

CHANNEL INPUTS

CHANNEL LENGTH	400.00	FT
DRAINAGE AREA UPPER END	0.2000	ACRES
EFFCT. LENGTH UPPER END	26.67	FT
DRAINAGE AREA LOWER END	3.2000	ACRES
EFFCT. LENGTH LOWER END	426.67	FT
MANNING N FOR BARE SOIL	0.030	
SOIL ERODIBILITY FACTOR	0.135	

A TRIANGULAR SHAPED CHANNEL

ENERGY GRADELINE
USES THE ENERGY GRADELINE CURVES

RATING CURVE CONTROL

Q = RA*(Y-YBASE)**RN
RA = 2.410
RN = 2.250
YBASE = 0.0

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73000 - 73105

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.027	0.230	0.260	0.550	0.030
100.0	1.000	0.027	0.230	0.260	0.550	0.030

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHE COV LB/FT
0.0	0.0	0.005	0.065	10.000	0.330	0.330	0.400	100.0
18.0	0.100	0.005	0.065	10.000	0.330	0.330	0.400	100.0
36.0	0.200	0.005	0.065	10.000	0.330	0.330	0.400	100.0
54.0	0.300	0.005	0.065	10.000	0.330	0.330	0.400	100.0
72.0	0.400	0.005	0.065	10.000	0.330	0.330	0.400	100.0
90.0	0.500	0.005	0.065	10.000	0.330	0.330	0.400	100.0
108.0	0.600	0.005	0.065	10.000	0.330	0.330	0.400	100.0
126.0	0.700	0.005	0.065	10.000	0.330	0.330	0.400	100.0
144.0	0.800	0.005	0.065	10.000	0.330	0.330	0.400	100.0
162.0	0.900	0.005	0.065	10.000	0.330	0.330	0.400	100.0
180.0	1.000	0.005	0.065	10.000	0.330	0.330	0.400	100.0

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEAR COVR LB/FT*
26.7	0.062	0.021	0.040	10.000	0.330	0.330	0.400	100.0
42.7	0.100	0.021	0.040	10.000	0.330	0.330	0.400	100.0
85.3	0.200	0.021	0.040	10.000	0.330	0.330	0.400	100.0
128.0	0.300	0.026	0.040	10.000	0.330	0.330	0.400	100.0
170.7	0.400	0.030	0.040	10.000	0.330	0.330	0.400	100.0
213.3	0.500	0.023	0.040	10.000	0.330	0.330	0.400	100.0
256.0	0.600	0.017	0.040	10.000	0.330	0.330	0.400	100.0
298.7	0.700	0.015	0.040	10.000	0.330	0.330	0.400	100.0
341.3	0.800	0.017	0.040	10.000	0.330	0.330	0.400	100.0
384.0	0.900	0.020	0.040	10.000	0.330	0.330	0.400	100.0
426.7	1.000	0.024	0.040	10.000	0.330	0.330	0.400	100.0

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73105 - 73121

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL-EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.027	0.230	0.400	0.550	0.030
100.0	1.000	0.027	0.230	0.400	0.550	0.030

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEAR COVR LB/FT*
0.0	0.0	0.005	0.040	10.000	0.330	0.330	0.150	100.0
18.0	0.100	0.005	0.040	10.000	0.330	0.330	0.150	100.0
36.0	0.200	0.005	0.040	10.000	0.330	0.330	0.150	100.0
54.0	0.300	0.005	0.040	10.000	0.330	0.330	0.150	100.0
72.0	0.400	0.005	0.040	10.000	0.330	0.330	0.150	100.0
90.0	0.500	0.005	0.040	10.000	0.330	0.330	0.150	100.0
108.0	0.600	0.005	0.040	10.000	0.330	0.330	0.150	100.0
126.0	0.700	0.005	0.040	10.000	0.330	0.330	0.150	100.0
144.0	0.800	0.005	0.040	10.000	0.330	0.330	0.150	100.0
162.0	0.900	0.005	0.040	10.000	0.330	0.330	0.150	100.0
180.0	1.000	0.005	0.040	10.000	0.330	0.330	0.150	100.0

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73121 - 73150

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.027	0.230	0.620	0.550	0.010
100.0	1.000	0.027	0.230	0.620	0.550	0.010

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEA COVE LB/FT*
0.0	0.0	0.005	0.030	10.000	0.330	0.330	0.100	100.0
18.0	0.100	0.005	0.030	10.000	0.330	0.330	0.100	100.0
36.0	0.200	0.005	0.030	10.000	0.330	0.330	0.100	100.0
54.0	0.300	0.005	0.030	10.000	0.330	0.330	0.100	100.0
72.0	0.400	0.005	0.030	10.000	0.330	0.330	0.100	100.0
90.0	0.500	0.005	0.030	10.000	0.330	0.330	0.100	100.0
108.0	0.600	0.005	0.030	10.000	0.330	0.330	0.100	100.0
126.0	0.700	0.005	0.030	10.000	0.330	0.330	0.100	100.0
144.0	0.800	0.005	0.030	10.000	0.330	0.330	0.100	100.0
162.0	0.900	0.005	0.030	10.000	0.330	0.330	0.100	100.0
180.0	1.000	0.005	0.030	10.000	0.330	0.330	0.100	100.0

STORM INPUTS

DATE	73139	JULIAN DATE
RAINFALL	0.46	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73143	JULIAN DATE
RAINFALL	0.52	INCHES
RUNOFF VOLUME	0.0	INCHES

EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73144	JULIAN DATE
RAINFALL	0.23	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73148	JULIAN DATE
RAINFALL	4.27	INCHES
RUNOFF VOLUME	1.51	INCHES
EXCESS RAINFALL	2.37	INCHES/HR
EI	2.06	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73148 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	8.	0.0035	0.0001	56.
2	7.	0.0032	0.0001	52.
3	64.	0.0283	0.0005	453.
4	75.	0.0332	0.0005	531.
5	127.	0.0565	0.0009	906.
TOTAL	280.	0.1247	0.0020	1999.

AVERAGE SOIL LOSS FOR AREA 0.34 TONS/ACRE

SAND	0.288
ORGANIC MATTER	0.021

INDEX OF SPECIFIC SURFACE 19.94 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.126

MONTHLY SUMMARY FOR MAY, 1973

4 STORMS PRODUCED 5.50 IN. OF RAINFALL
1 STORMS PRODUCED 1.51 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	61.	0.0035	0.0001	56.
2	57.	0.0032	0.0001	52.
3	493.	0.0281	0.0005	451.
4	257.	0.0147	0.0002	235.
5	70.	0.0040	0.0001	64.
TOTAL	939.	0.0535	0.0009	858.

AVERAGE SOIL LOSS FOR AREA 0.15 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.301
SILT	0.412
SAND	0.288
ORGANIC MATTER	0.021

INDEX OF SPECIFIC SURFACE 19.94 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.126

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73150 - 73165

VALUES FOR STORM 73148 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END 0.0 FT**3/SEC
PEAK DISCHARGE LOWER END 0.980 FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	8.	0.0035	0.0001	56.
2	7.	0.0032	0.0001	52.
3	64.	0.0283	0.0005	453.
4	75.	0.0332	0.0005	531.
5	127.	0.0565	0.0009	906.
TOTAL	280.	0.1247	0.0020	1999.

AVERAGE SOIL LOSS FOR AREA 0.34 TONS/ACRE

VALUES FOR STORM 73148 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.478 FT**3/SEC
PEAK DISCHARGE LOWER END 7.647 FT**3/SEC
CONTROL DEPTH 1.671 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	61.	0.0035	0.0001	56.
2	57.	0.0032	0.0001	52.
3	493.	0.0281	0.0005	451.
4	257.	0.0147	0.0002	235.
5	70.	0.0040	0.0001	64.
TOTAL	939.	0.0535	0.0009	858.

AVERAGE SOIL LOSS FOR AREA 0.15 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.301
SILT	0.412

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.027	0.230	0.540	0.550	0.010
100.0	1.000	0.027	0.230	0.540	0.550	0.010

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHE COVI LB/FT
0.0	0.0	0.005	0.030	10.000	0.330	0.330	0.100	100.0
18.0	0.100	0.005	0.030	10.000	0.330	0.330	0.100	100.0
36.0	0.200	0.005	0.030	10.000	0.330	0.330	0.100	100.0
54.0	0.300	0.005	0.030	10.000	0.330	0.330	0.100	100.0
72.0	0.400	0.005	0.030	10.000	0.330	0.330	0.100	100.0
90.0	0.500	0.005	0.030	10.000	0.330	0.330	0.100	100.0
108.0	0.600	0.005	0.030	10.000	0.330	0.330	0.100	100.0
126.0	0.700	0.005	0.030	10.000	0.330	0.330	0.100	100.0
144.0	0.800	0.005	0.030	10.000	0.330	0.330	0.100	100.0
162.0	0.900	0.005	0.030	10.000	0.330	0.330	0.100	100.0
180.0	1.000	0.005	0.030	10.000	0.330	0.330	0.100	100.0

STORM INPUTS

DATE	73156	JULIAN DATE
RAINFALL	0.28	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73157	JULIAN DATE
RAINFALL	1.22	INCHES
RUNOFF VOLUME	0.10	INCHES
EXCESS RAINFALL	0.09	INCHES/HR
EI	2.69	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73157 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	1.	0.0054	0.0001	86.
2	1.	0.0050	0.0001	80.
3	6.	0.0434	0.0007	695.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	8.	0.0537	0.0009	860.

AVERAGE SOIL LOSS FOR AREA 0.01 TONS/ACRE

VALUES FOR STORM 73157 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END 0.0 FT**3/SEC
PEAK DISCHARGE LOWER END 0.037 FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	1.	0.0054	0.0001	86.
2	1.	0.0050	0.0001	80.
3	6.	0.0434	0.0007	695.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	8.	0.0537	0.0009	860.

AVERAGE SOIL LOSS FOR AREA 0.01 TONS/ACRE

VALUES FOR STORM 73157 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.018 FT**3/SEC
PEAK DISCHARGE LOWER END 0.293 FT**3/SEC
CONTROL DEPTH 0.390 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

ENRICHMENT RATIO OF SPECIFIC SURFACE 3.040

STORM INPUTS

DATE	73160	JULIAN DATE
RAINFALL	0.50	INCHES
RUNOFF VOLUME	0.03	INCHES
EXCESS RAINFALL	0.01	INCHES/HR
EI	2.99	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73160 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0025	0.0000	40.
2	0.	0.0000	0.0000	1.
3	0.	0.0001	0.0000	1.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0026	0.0000	41.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73160 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END 0.0 FT**3/SEC
PEAK DISCHARGE LOWER END 0.004 FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0025	0.0000	40.
2	0.	0.0000	0.0000	1.
3	0.	0.0001	0.0000	1.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	6.	0.0054	0.0001	86.
2	6.	0.0050	0.0001	79.
3	47.	0.0405	0.0006	649.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	59.	0.0508	0.0008	814.

AVERAGE SOIL LOSS FOR AREA 0.01 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.434
SILT	0.566
SAND	0.000
ORGANIC MATTER	0.031

INDEX OF SPECIFIC SURFACE 28.51 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 3.040

STORM INPUTS

DATE	73159	JULIAN DATE
RAINFALL	0.60	INCHES
RUNOFF VOLUME	0.01	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.434
SILT	0.566
SAND	0.000
ORGANIC MATTER	0.031

INDEX OF SPECIFIC SURFACE 28.51 M**2/G OF TOTAL SEDIMENT

TOTAL	0.	0.0026	0.0000	41.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73160 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.002 FT**3/SEC
PEAK DISCHARGE LOWER END 0.032 FT**3/SEC
CONTROL DEPTH 0.147 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	1.	0.0025	0.0000	40.
2	0.	0.0000	0.0000	1.
3	0.	0.0001	0.0000	1.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	1.	0.0026	0.0000	42.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.969
SILT	0.029
SAND	0.002
ORGANIC MATTER	0.009

INDEX OF SPECIFIC SURFACE 59.21 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 6.208

STORM INPUTS

DATE	73161	JULIAN DATE
RAINFALL	0.25	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73164	JULIAN DATE
RAINFALL	0.78	INCHES
RUNOFF VOLUME	0.03	INCHES
EXCESS RAINFALL	0.02	INCHES/HR
EI	3.11	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73164 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	1.	0.0206	0.0003	331.
2	0.	0.0001	0.0000	1.
3	0.	0.0001	0.0000	2.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	1.	0.0208	0.0003	334.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73164 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END 0.0 FT**3/SEC
PEAK DISCHARGE LOWER END 0.008 FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	1.	0.0206	0.0003	331.
2	0.	0.0001	0.0000	1.
3	0.	0.0001	0.0000	2.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.

TOTAL	1.	0.0208	0.0003	334.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73164 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.004 FT**3/SEC
PEAK DISCHARGE LOWER END 0.065 FT**3/SEC
CONTROL DEPTH 0.200 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	7.	0.0206	0.0003	330.
2	0.	0.0001	0.0000	1.
3	0.	0.0001	0.0000	2.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	7.	0.0208	0.0003	334.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.993
SILT	0.007
SAND	0.000
ORGANIC MATTER	0.071

INDEX OF SPECIFIC SURFACE 59.55 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 6.350

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73165 - 73180

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE	DISTANCE	SLOPE	SOIL EROD.	CROPPING	CONTOUR	MANNINGS

FEET	NONDIM.		K FACTOR	C FACTOR	P FACTOR	N
0.0	0.0	0.027	0.230	0.420	0.550	0.010
100.0	1.000	0.027	0.230	0.420	0.550	0.010

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEA COVE LB/FT*
0.0	0.0	0.005	0.030	10.000	0.330	0.330	0.100	100.00
18.0	0.100	0.005	0.030	10.000	0.330	0.330	0.100	100.00
36.0	0.200	0.005	0.030	10.000	0.330	0.330	0.100	100.00
54.0	0.300	0.005	0.030	10.000	0.330	0.330	0.100	100.00
72.0	0.400	0.005	0.030	10.000	0.330	0.330	0.100	100.00
90.0	0.500	0.005	0.030	10.000	0.330	0.330	0.100	100.00
108.0	0.600	0.005	0.030	10.000	0.330	0.330	0.100	100.00
126.0	0.700	0.005	0.030	10.000	0.330	0.330	0.100	100.00
144.0	0.800	0.005	0.030	10.000	0.330	0.330	0.100	100.00
162.0	0.900	0.005	0.030	10.000	0.330	0.330	0.100	100.00
180.0	1.000	0.005	0.030	10.000	0.330	0.330	0.100	100.00

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEA COVE LB/FT*
26.7	0.062	0.021	0.030	10.000	0.330	0.330	0.400	100.00
42.7	0.100	0.021	0.030	10.000	0.330	0.330	0.400	100.00
85.3	0.200	0.021	0.030	10.000	0.330	0.330	0.400	100.00
128.0	0.300	0.026	0.030	10.000	0.330	0.330	0.400	100.00
170.7	0.400	0.030	0.030	10.000	0.330	0.330	0.400	100.00
213.3	0.500	0.023	0.030	10.000	0.330	0.330	0.400	100.00
256.0	0.600	0.017	0.030	10.000	0.330	0.330	0.400	100.00
298.7	0.700	0.015	0.030	10.000	0.330	0.330	0.400	100.00
341.3	0.800	0.017	0.030	10.000	0.330	0.330	0.400	100.00
384.0	0.900	0.020	0.030	10.000	0.330	0.330	0.400	100.00
426.7	1.000	0.024	0.030	10.000	0.330	0.330	0.400	100.00

STORM INPUTS

DATE	73171	JULIAN DATE
RAINFALL	0.20	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73172	JULIAN DATE
RAINFALL	0.71	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73176	JULIAN DATE
RAINFALL	0.13	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73179	JULIAN DATE
RAINFALL	0.38	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

MONTHLY SUMMARY FOR JUN, 1973

10 STORMS PRODUCED 5.05 IN. OF RAINFALL

4 STORMS PRODUCED 0.17 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	14.	0.0072	0.0001	116.
2	6.	0.0029	0.0000	47.
3	47.	0.0238	0.0004	382.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	67.	0.0340	0.0005	545.

AVERAGE SOIL LOSS FOR AREA 0.01 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.501
SILT	0.499
SAND	0.000
ORGANIC MATTER	0.036

INDEX OF SPECIFIC SURFACE 32.29 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 3.444

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73180 - 73200

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.027	0.230	0.200	0.550	0.010
100.0	1.000	0.027	0.230	0.200	0.550	0.010

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE	DISTANCE	SLOPE	MANN. N	WIDTH	DEPTH MIDDLE	DEPTH SIDE	SHEAR CRIT.	SHEAR COVE

FEET	NONDIM.			FEET	FEET	FEET	LB/FT**2	LB/FT**
0.0	0.0	0.005	0.030	10.000	0.330	0.330	0.200	100.000
18.0	0.100	0.005	0.030	10.000	0.330	0.330	0.200	100.000
36.0	0.200	0.005	0.030	10.000	0.330	0.330	0.200	100.000
54.0	0.300	0.005	0.030	10.000	0.330	0.330	0.200	100.000
72.0	0.400	0.005	0.030	10.000	0.330	0.330	0.200	100.000
90.0	0.500	0.005	0.030	10.000	0.330	0.330	0.200	100.000
108.0	0.600	0.005	0.030	10.000	0.330	0.330	0.200	100.000
126.0	0.700	0.005	0.030	10.000	0.330	0.330	0.200	100.000
144.0	0.800	0.005	0.030	10.000	0.330	0.330	0.200	100.000
162.0	0.900	0.005	0.030	10.000	0.330	0.330	0.200	100.000
180.0	1.000	0.005	0.030	10.000	0.330	0.330	0.200	100.000

STORM INPUTS

DATE	73189	JULIAN DATE
RAINFALL	1.61	INCHES
RUNOFF VOLUME	0.03	INCHES
EXCESS RAINFALL	0.02	INCHES/HR
EI	3.11	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73189 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0076	0.0001	122.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	1.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0077	0.0001	124.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73189 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END	0.0	FT**3/SEC
PEAK DISCHARGE LOWER END	0.008	FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0076	0.0001	122.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	1.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0077	0.0001	124.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73189 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.004 FT**3/SEC
PEAK DISCHARGE LOWER END 0.065 FT**3/SEC
CONTROL DEPTH 0.200 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	3.	0.0076	0.0001	122.
2	0.	0.0000	0.0000	0.
3	0.	0.0001	0.0000	1.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	3.	0.0077	0.0001	124.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.992
SILT	0.007
SAND	0.001
ORGANIC MATTER	0.071

INDEX OF SPECIFIC SURFACE 59.50 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 6.345

FEET	NONDIM.			FEET	MIDDLE FEET	SIDE FEET	CRIT. LB/FT**2	CONV LB/FT*
0.0	0.0	0.005	0.030	10.000	0.330	0.330	0.300	100.00
18.0	0.100	0.005	0.030	10.000	0.330	0.330	0.300	100.00
36.0	0.200	0.005	0.030	10.000	0.330	0.330	0.300	100.00
54.0	0.300	0.005	0.030	10.000	0.330	0.330	0.300	100.00
72.0	0.400	0.005	0.030	10.000	0.330	0.330	0.300	100.00
90.0	0.500	0.005	0.030	10.000	0.330	0.330	0.300	100.00
108.0	0.600	0.005	0.030	10.000	0.330	0.330	0.300	100.00
126.0	0.700	0.005	0.030	10.000	0.330	0.330	0.300	100.00
144.0	0.800	0.005	0.030	10.000	0.330	0.330	0.300	100.00
162.0	0.900	0.005	0.030	10.000	0.330	0.330	0.300	100.00
180.0	1.000	0.005	0.030	10.000	0.330	0.330	0.300	100.00

STORM INPUTS

DATE	73206	JULIAN DATE
RAINFALL	0.34	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73207	JULIAN DATE
RAINFALL	0.07	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73208	JULIAN DATE
RAINFALL	0.06	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR

STORM INPUTS

DATE	73195	JULIAN DATE
RAINFALL	0.20	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73197	JULIAN DATE
RAINFALL	0.05	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73198	JULIAN DATE
RAINFALL	0.45	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73200 - 73274

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE	DISTANCE	SLOPE	MANN. N	WIDTH	DEPTH	DEPTH	SHEAR	SHEAR

EI 0.0 WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73211	JULIAN DATE
RAINFALL	0.79	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

MONTHLY SUMMARY FOR JUL, 1973

8 STORMS PRODUCED 3.57 IN. OF RAINFALL
1 STORMS PRODUCED 0.03 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	3.	0.0076	0.0001	122.
2	0.	0.0000	0.0000	0.
3	0.	0.0001	0.0000	1.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	3.	0.0077	0.0001	124.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.992
SILT	0.007

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SAND	0.001
ORGANIC MATTER	0.071

INDEX OF SPECIFIC SURFACE 59.50 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 6.346

STORM INPUTS

DATE	73246	JULIAN DATE
RAINFALL	0.26	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73252	JULIAN DATE
RAINFALL	1.95	INCHES
RUNOFF VOLUME	0.09	INCHES
EXCESS RAINFALL	0.05	INCHES/HR
EI	2.92	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73252 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0024	0.0000	38.
2	0.	0.0022	0.0000	36.
3	3.	0.0194	0.0003	310.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	3.	0.0240	0.0004	384.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73252 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END 0.0 FT**3/SEC
PEAK DISCHARGE LOWER END 0.021 FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0024	0.0000	38.
2	0.	0.0022	0.0000	36.
3	3.	0.0194	0.0003	310.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	3.	0.0240	0.0004	384.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73252 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.010 FT**3/SEC
PEAK DISCHARGE LOWER END 0.161 FT**3/SEC
CONTROL DEPTH 0.301 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	3.	0.0024	0.0000	38.
2	2.	0.0022	0.0000	36.
3	20.	0.0189	0.0003	302.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	25.	0.0235	0.0004	376.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.433

SILT	0.567
SAND	0.000
ORGANIC MATTER	0.031

INDEX OF SPECIFIC SURFACE 28.46 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 3.035

STORM INPUTS

DATE	73253	JULIAN DATE
RAINFALL	0.05	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73256	JULIAN DATE
RAINFALL	1.24	INCHES
RUNOFF VOLUME	0.12	INCHES
EXCESS RAINFALL	0.03	INCHES/HR
EI	2.76	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73256 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0017	0.0000	27.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0017	0.0000	28.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73256 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END 0.0 FT**3/SEC
PEAK DISCHARGE LOWER END 0.012 FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0017	0.0000	27.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0017	0.0000	28.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73256 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.006 FT**3/SEC
PEAK DISCHARGE LOWER END 0.097 FT**3/SEC
CONTROL DEPTH 0.240 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	2.	0.0017	0.0000	27.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	2.	0.0017	0.0000	28.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION

CLAY	0.984
SILT	0.014
SAND	0.002
ORGANIC MATTER	0.070

INDEX OF SPECIFIC SURFACE 59.08 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 6.300

STORM INPUTS

DATE	73260	JULIAN DATE
RAINFALL	0.42	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73270	JULIAN DATE
RAINFALL	0.21	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73271	JULIAN DATE
RAINFALL	0.30	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73273	JULIAN DATE
RAINFALL	0.50	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

MONTHLY SUMMARY FOR SEP, 1973

8 STORMS PRODUCED 4.93 IN. OF RAINFALL
2 STORMS PRODUCED 0.21 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	5.	0.0020	0.0000	32.
2	2.	0.0010	0.0000	15.
3	20.	0.0081	0.0001	130.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	27.	0.0111	0.0002	177.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.482
SILT	0.517
SAND	0.000
ORGANIC MATTER	0.034

INDEX OF SPECIFIC SURFACE 31.23 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 3.331

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73274 - 73365

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.027	0.230	0.200	0.550	0.040
100.0	1.000	0.027	0.230	0.200	0.550	0.040

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEAR COV LB/FT
0.0	0.0	0.005	0.065	10.000	0.330	0.330	0.300	100.0
18.0	0.100	0.005	0.065	10.000	0.330	0.330	0.300	100.0
36.0	0.200	0.005	0.065	10.000	0.330	0.330	0.300	100.0
54.0	0.300	0.005	0.065	10.000	0.330	0.330	0.300	100.0
72.0	0.400	0.005	0.065	10.000	0.330	0.330	0.300	100.0
90.0	0.500	0.005	0.065	10.000	0.330	0.330	0.300	100.0
108.0	0.600	0.005	0.065	10.000	0.330	0.330	0.300	100.0
126.0	0.700	0.005	0.065	10.000	0.330	0.330	0.300	100.0
144.0	0.800	0.005	0.065	10.000	0.330	0.330	0.300	100.0
162.0	0.900	0.005	0.065	10.000	0.330	0.330	0.300	100.0
180.0	1.000	0.005	0.065	10.000	0.330	0.330	0.300	100.0

STORM INPUTS

DATE	73303	JULIAN DATE
RAINFALL	0.26	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

MONTHLY SUMMARY FOR OCT. 1973

1 STORMS PRODUCED 0.26 IN. OF RAINFALL
0 STORMS PRODUCED 0.0 IN. OF RUNOFF

STORM INPUTS

DATE	73325	JULIAN DATE
RAINFALL	0.82	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73329	JULIAN DATE
RAINFALL	0.23	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73330	JULIAN DATE
RAINFALL	0.15	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73332	JULIAN DATE
RAINFALL	0.55	INCHES
RUNOFF VOLUME	0.01	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

MONTHLY SUMMARY FOR NOV, 1973

4 STORMS PRODUCED 1.75 IN. OF RAINFALL
1 STORMS PRODUCED 0.01 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0	0.0	0.
2	0.	0.0	0.0	0.
3	0.	0.0	0.0	0.
4	0.	0.0	0.0	0.
5	0.	0.0	0.0	0.
TOTAL	0.	0.0	0.0	0.

AVERAGE SOIL LOSS FOR AREA 0.0 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.0
SILT	0.0
SAND	0.0
ORGANIC MATTER	0.0

INDEX OF SPECIFIC SURFACE 0.0 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 0.0

STORM INPUTS

DATE	73338	JULIAN DATE
RAINFALL	0.08	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73340	JULIAN DATE
RAINFALL	1.57	INCHES
RUNOFF VOLUME	0.32	INCHES
EXCESS RAINFALL	0.03	INCHES/HR
EI	2.85	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73340 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0001	0.0000	1.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0001	0.0000	1.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73340 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END	0.0	FT**3/SEC
PEAK DISCHARGE LOWER END	0.012	FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)

DATE	73349	JULIAN DATE
RAINFALL	0.65	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73350	JULIAN DATE
RAINFALL	0.10	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73354	JULIAN DATE
RAINFALL	0.76	INCHES
RUNOFF VOLUME	0.06	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

STORM INPUTS

DATE	73359	JULIAN DATE
RAINFALL	0.47	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

1	0.	0.0001	0.0000	1.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0001	0.0000	1.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73340 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.006 FT**3/SEC
PEAK DISCHARGE LOWER END 0.097 FT**3/SEC
CONTROL DEPTH 0.240 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0001	0.0000	1.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0001	0.0000	2.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.948
SILT	0.112
SAND	0.039
ORGANIC MATTER	0.061

INDEX OF SPECIFIC SURFACE 51.45 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 5.487

STORM INPUTS

STORM INPUTS

DATE	73360	JULIAN DATE
RAINFALL	0.25	INCHES
RUNOFF VOLUME	0.0	INCHES
EXCESS RAINFALL	0.0	INCHES/HR
EI	0.0	WISCHMEIER ENGL. UNITS

*** NO RUNOFF - NO LOSSES ***

STORM INPUTS

DATE	73364	JULIAN DATE
RAINFALL	0.90	INCHES
RUNOFF VOLUME	0.11	INCHES
EXCESS RAINFALL	0.01	INCHES/HR
EI	3.53	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73364 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0001	0.0000	2.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0001	0.0000	2.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73364 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END 0.0 FT**3/SEC
PEAK DISCHARGE LOWER END 0.004 FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0001	0.0000	2.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0001	0.0000	2.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73364 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.002 FT**3/SEC
PEAK DISCHARGE LOWER END 0.032 FT**3/SEC
CONTROL DEPTH 0.147 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0001	0.0000	2.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0001	0.0000	2.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.874
SILT	0.100
SAND	0.025
ORGANIC MATTER	0.062

INDEX OF SPECIFIC SURFACE 52.93 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 5.644

STORM INPUTS

DATE	73365	JULIAN DATE
RAINFALL	1.95	INCHES
RUNOFF VOLUME	0.88	INCHES
EXCESS RAINFALL	0.07	INCHES/HR
EI	2.36	WISCHMEIER ENGL. UNITS

VALUES FOR STORM 73365 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0000	0.0000	1.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0001	0.0000	1.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73365 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END 0.0 FT**3/SEC
PEAK DISCHARGE LOWER END 0.029 FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	0.	0.0000	0.0000	1.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	0.	0.0001	0.0000	1.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

VALUES FOR STORM 73365 FROM CHANNEL TWO

PEAK DISCHARGE UPPER END 0.014 FT**3/SEC
PEAK DISCHARGE LOWER END 0.226 FT**3/SEC
CONTROL DEPTH 0.349 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	1.	0.0001	0.0000	1.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	1.	0.0001	0.0000	1.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.773
SILT	0.158
SAND	0.069
ORGANIC MATTER	0.055

INDEX OF SPECIFIC SURFACE 47.17 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 5.030

MONTHLY SUMMARY FOR DEC, 1973

9 STORMS PRODUCED 6.73 IN. OF RAINFALL
4 STORMS PRODUCED 1.37 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)

1	1.	0.0001	0.0000	1.
2	0.	0.0000	0.0000	0.
3	0.	0.0000	0.0000	0.
4	0.	0.0000	0.0000	0.
5	0.	0.0000	0.0000	0.
TOTAL	1.	0.0001	0.0000	1.

AVERAGE SOIL LOSS FOR AREA 0.00 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.307
SILT	0.138
SAND	0.055
ORGANIC MATTER	0.058

INDEX OF SPECIFIC SURFACE 49.11 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 5.237

ANNUAL SUMMARY FOR 1973

44 STORMS PRODUCED 27.79 IN. OF RAINFALL
13 STORMS PRODUCED 3.30 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	84.	0.0022	0.0000	35.
2	65.	0.0017	0.0000	27.
3	560.	0.0146	0.0002	234.
4	257.	0.0067	0.0001	107.
5	70.	0.0018	0.0000	29.
TOTAL	1037.	0.0271	0.0004	433.

AVERAGE SOIL LOSS FOR AREA 0.16 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.321
SILT	0.419
SAND	0.261
ORGANIC MATTER	0.023

INDEX OF SPECIFIC SURFACE 21.18 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 2.258

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73365 - 74105

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.027	0.230	0.260	0.550	0.030
100.0	1.000	0.027	0.230	0.260	0.550	0.030

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEAR COVER LB/FT**
0.0	0.0	0.005	0.065	10.000	0.330	0.330	0.400	100.00
18.0	0.100	0.005	0.065	10.000	0.330	0.330	0.400	100.00
36.0	0.200	0.005	0.065	10.000	0.330	0.330	0.400	100.00
54.0	0.300	0.005	0.065	10.000	0.330	0.330	0.400	100.00
72.0	0.400	0.005	0.065	10.000	0.330	0.330	0.400	100.00
90.0	0.500	0.005	0.065	10.000	0.330	0.330	0.400	100.00
108.0	0.600	0.005	0.065	10.000	0.330	0.330	0.400	100.00
126.0	0.700	0.005	0.065	10.000	0.330	0.330	0.400	100.00
144.0	0.800	0.005	0.065	10.000	0.330	0.330	0.400	100.00
162.0	0.900	0.005	0.065	10.000	0.330	0.330	0.400	100.00
180.0	1.000	0.005	0.065	10.000	0.330	0.330	0.400	100.00

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEAR COVER LB/FT**

This example output is for FLGSEQ 5, overland-channel-pond and FLGOUT 3, A single storm and detailed output by segments. The output shows the results from the first runoff producing storm or the simulation. This occurred on 73148. As you can see, if you wanted results from every storm this will generate very large volumes of printout.

C R E A M S NONPOINT SOURCE POLLUTION MODEL (EROSION/SEDIMENT YIELD)

VERSION 1.5 JUL 22,1981 TIFTON GA

EROSION PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE THREE
CONTINUOUS CORN - CONVENTIONAL TILLAGE

INITIAL CONSTANTS

STARTING DATE FOR THIS RUN	73000	JULIAN DATE
WT. DENSITY SOIL (IN PLACE)	90.0	LBSF/FT**3
WT. WATER DENSITY	62.4	LBSF/FT**3
MASS WATER DENSITY	1.94	SLUGS/FT**3
ACC. DUE TO GRAVITY	32.2	FT/SEC**2
KINEMATIC VISCOSITY	0.121E-04	FT**2/SEC
MANNING N BARE SOIL (OVER)	0.010	
MANNING N BARE SOIL (CHAN)	0.030	
CHANNEL ERODIBILITY FACTOR	0.135	
(LBS/FT**2 SEC)/(LBS/FT**2)**1.05		
YALIN CONSTANT (ALL PART.)	0.635	
MOMENTUM COEFF. FOR NONUNIFORM VELOCITY IN CROSS SECTION	1.56	(NO UNITS)

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ORIGINAL SOIL MASS

TYPE	FRACTION	SPECIFIC SURFACE
		(M**2/G OF SOIL)
CLAY	0.140	20.000
SILT	0.200	4.000
SAND	0.660	0.050
		(M**2/G OF ORGANIC CARBON)
ORGANIC MATTER	0.010	1000.000

(ORGANIC CARBON = ORGANIC MATTER/1.73)

INDEX OF SPECIFIC SURFACE 9.38 M**2/G OF TOTAL SOIL

PARTICLE SPECIFICATIONS

TYPE NO.	DIA. MM	EQSAND DIA. MM	FALL VEL. FT/SEC	SPGRAV. GM/CM**3	FRAC. IN DETACH. SED.
1	0.002	0.002	0.102E-04	2.60	0.03
2	0.010	0.010	0.263E-03	2.65	0.03
3	0.030	0.020	0.125E-02	1.80	0.23
4	0.280	0.158	0.542E-01	1.60	0.27
5	0.200	0.201	0.759E-01	2.65	0.45

PARTICLE COMPOSITION

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TYPE NO.	PRIMARY PARTICLE FRACTIONS CLAY	SILT	SAND	ORGANIC MATTER
1	1.000	0.0	0.0	0.071
2	0.0	1.000	0.0	0.0
3	0.412	0.588	0.0	0.029
4	0.070	0.153	0.777	0.005
5	0.0	0.0	1.000	0.0

OVERLAND INPUTS

OVERLAND AREA	3.2000	ACRES
SLOPE LENGTH	206.00	FT
MAXIMUM ELEVATION	5.50	FT
AVERAGE SLOPE	0.0267	
SLOPE OF UPPER END	0.0200	
SLOPE OF MID SECTION	0.0380	
SLOPE OF LOWER END	0.0240	

THE SLOPE IS A CONVEX CONCAVE

LOCATION OF UNIFORM SECTION
DISTANCE,ELEVATION 98.0, 3.5
DISTANCE,ELEVATION 156.0, 1.3
DISTANCE MEASURED FROM THE UPPER END
ELEVATION MEASURED ABOVE LOWEST POINT

CHANNEL INPUTS

CHANNEL LENGTH	371.00	FT
DRAINAGE AREA UPPER END	0.2000	ACRES
EFFCT. LENGTH UPPER END	24.73	FT
DRAINAGE AREA LOWER END	3.2000	ACRES
EFFCT. LENGTH LOWER END	395.73	FT
MANNING N FOR BARE SOIL	0.030	
SOIL ERODIBILITY FACTOR	0.135	

A TRIANGULAR SHAPED CHANNEL

ENERGY GRADELINE
USES THE ENERGY GRADELINE CURVES

RATING CURVE CONTROL

Q = RA*(Y-YBASE)**RN
RA = 2.410
RN = 2.250
YBASE = 0.0

POND INPUTS

DRAINAGE AREA	3.2000	ACRES
INTAKE RATE	0.20	IN/HR

A = 5226.7 (FS)
B = 2.00 (B)

pg 6-82

COMPUTED FROM SLOPES:
FRONT = 0.200
DRAW = 0.024
SIDE = 0.010

IMPOUNDMENT EXIT
(Q = C * SQRT(DEPTH))
WATER EXITS THROUGH A PIPE OUTLET
ORIFICE DIAMETER = 0.25 FT
ORIFICE COEFICIENT = 873.0

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73000 - 73105

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.020	0.230	0.260	1.000	0.030
93.5	0.454	0.020	0.230	0.260	1.000	0.030
95.0	0.461	0.023	0.230	0.260	1.000	0.030
96.5	0.469	0.029	0.230	0.260	1.000	0.030
98.0	0.476	0.035	0.230	0.260	1.000	0.030
156.0	0.757	0.038	0.230	0.260	1.000	0.030
157.4	0.764	0.037	0.230	0.260	1.000	0.030
158.9	0.771	0.036	0.230	0.260	1.000	0.030
160.3	0.778	0.034	0.230	0.260	1.000	0.030
161.7	0.785	0.033	0.230	0.260	1.000	0.030
163.1	0.792	0.032	0.230	0.260	1.000	0.030
164.6	0.799	0.030	0.230	0.260	1.000	0.030
166.0	0.806	0.029	0.230	0.260	1.000	0.030
167.4	0.813	0.027	0.230	0.260	1.000	0.030
168.9	0.820	0.026	0.230	0.260	1.000	0.030
170.3	0.827	0.025	0.230	0.260	1.000	0.030
206.0	1.000	0.024	0.230	0.260	1.000	0.030

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEAR COVER LB/FT**
24.7	0.062	0.021	0.065	10.000	0.330	0.330	0.400	100.000
39.6	0.100	0.021	0.065	10.000	0.330	0.330	0.400	100.000
79.1	0.200	0.023	0.065	10.000	0.330	0.330	0.400	100.000
118.7	0.300	0.030	0.065	10.000	0.330	0.330	0.400	100.000
158.3	0.400	0.027	0.065	10.000	0.330	0.330	0.400	100.000
197.9	0.500	0.021	0.065	10.000	0.330	0.330	0.400	100.000
237.4	0.600	0.015	0.065	10.000	0.330	0.330	0.400	100.000
277.0	0.700	0.016	0.065	10.000	0.330	0.330	0.400	100.000
316.6	0.800	0.018	0.065	10.000	0.330	0.330	0.400	100.000
356.2	0.900	0.021	0.065	10.000	0.330	0.330	0.400	100.000
395.7	1.000	0.024	0.065	10.000	0.330	0.330	0.400	100.000

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THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73105 - 73121

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.020	0.230	0.400	1.000	0.030
93.5	0.454	0.020	0.230	0.400	1.000	0.030
95.0	0.461	0.023	0.230	0.400	1.000	0.030
96.5	0.469	0.029	0.230	0.400	1.000	0.030
98.0	0.476	0.035	0.230	0.400	1.000	0.030
156.0	0.757	0.038	0.230	0.400	1.000	0.030
157.4	0.764	0.037	0.230	0.400	1.000	0.030
158.9	0.771	0.036	0.230	0.400	1.000	0.030
160.3	0.778	0.034	0.230	0.400	1.000	0.030
161.7	0.785	0.033	0.230	0.400	1.000	0.030
163.1	0.792	0.032	0.230	0.400	1.000	0.030
164.6	0.799	0.030	0.230	0.400	1.000	0.030
166.0	0.806	0.029	0.230	0.400	1.000	0.030
167.4	0.813	0.027	0.230	0.400	1.000	0.030
168.9	0.820	0.026	0.230	0.400	1.000	0.030
170.3	0.827	0.025	0.230	0.400	1.000	0.030
206.0	1.000	0.024	0.230	0.400	1.000	0.030

POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**	SHEAR CURVE LB/FT**
24.7	0.062	0.021	0.040	10.000	0.330	0.330	0.150	100.000
39.6	0.100	0.021	0.040	10.000	0.330	0.330	0.150	100.000
79.1	0.200	0.023	0.040	10.000	0.330	0.330	0.150	100.000
118.7	0.300	0.030	0.040	10.000	0.330	0.330	0.150	100.000
158.3	0.400	0.027	0.040	10.000	0.330	0.330	0.150	100.000
197.9	0.500	0.021	0.040	10.000	0.330	0.330	0.150	100.000
237.4	0.600	0.015	0.040	10.000	0.330	0.330	0.150	100.000
277.0	0.700	0.016	0.040	10.000	0.330	0.330	0.150	100.000
316.6	0.800	0.018	0.040	10.000	0.330	0.330	0.150	100.000
356.2	0.900	0.021	0.040	10.000	0.330	0.330	0.150	100.000
395.7	1.000	0.024	0.040	10.000	0.330	0.330	0.150	100.000

THE FOLLOWING PARAMETERS ARE VALID BETWEEN THE DATES (JULIAN)
73121 - 73150

POINTS OF CHANGE ALONG THE OVERLAND PROFILE

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	SOIL EROD. K FACTOR	CROPPING C FACTOR	CONTOUR P FACTOR	MANNINGS N
0.0	0.0	0.020	0.230	0.620	1.000	0.010
93.5	0.454	0.020	0.230	0.620	1.000	0.010
95.0	0.461	0.023	0.230	0.620	1.000	0.010
96.5	0.469	0.029	0.230	0.620	1.000	0.010
98.0	0.476	0.035	0.230	0.620	1.000	0.010
156.0	0.757	0.038	0.230	0.620	1.000	0.010
157.4	0.764	0.037	0.230	0.620	1.000	0.010

160.3	0.778	0.034	0.230	0.620	1.000	0.010
161.7	0.785	0.033	0.230	0.620	1.000	0.010
163.1	0.792	0.032	0.230	0.620	1.000	0.010
164.6	0.799	0.030	0.230	0.620	1.000	0.010
166.0	0.806	0.029	0.230	0.620	1.000	0.010
167.4	0.813	0.027	0.230	0.620	1.000	0.010
168.9	0.820	0.026	0.230	0.620	1.000	0.010
170.3	0.827	0.025	0.230	0.620	1.000	0.010
206.0	1.000	0.024	0.230	0.620	1.000	0.010

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POINTS OF CHANGE ALONG THE CHANNEL

DISTANCE FEET	DISTANCE NONDIM.	SLOPE	MANN. N	WIDTH FEET	DEPTH MIDDLE FEET	DEPTH SIDE FEET	SHEAR CRIT. LB/FT**2	SHEAR COVER LB/FT**
24.7	0.062	0.021	0.030	10.000	0.330	0.330	0.100	100.00
39.6	0.100	0.021	0.030	10.000	0.330	0.330	0.100	100.00
79.1	0.200	0.023	0.030	10.000	0.330	0.330	0.100	100.00
118.7	0.300	0.030	0.030	10.000	0.330	0.330	0.100	100.00
158.3	0.400	0.027	0.030	10.000	0.330	0.330	0.100	100.00
197.9	0.500	0.021	0.030	10.000	0.330	0.330	0.100	100.00
237.4	0.600	0.015	0.030	10.000	0.330	0.330	0.100	100.00
277.0	0.700	0.016	0.030	10.000	0.330	0.330	0.100	100.00
316.6	0.800	0.018	0.030	10.000	0.330	0.330	0.100	100.00
356.2	0.900	0.021	0.030	10.000	0.330	0.330	0.100	100.00
395.7	1.000	0.024	0.030	10.000	0.330	0.330	0.100	100.00

STORM INPUTS

DATE	73148	JULIAN DATE
RAINFALL	4.27	INCHES
RUNOFF VOLUME	1.51	INCHES
EXCESS RAINFALL	2.37	INCHES/HR
EI	2.06	WISCHMEIER ENGL. UNITS

VALUES FOR THE SEGMENT 93.5 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS
1	0.01	0.01
2	0.01	0.01
3	0.08	0.07
4	0.09	0.08
5	0.15	0.13
TOTAL	0.34	0.29

VALUES FOR THE SEGMENT 95.0 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS
1	0.02	0.02
2	0.02	0.02
3	0.17	0.15
4	0.19	0.18
5	0.33	0.31

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TOTAL	0.73	0.68

VALUES FOR THE SEGMENT 96.5 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.03	0.03
2	0.03	0.03
3	0.24	0.23
4	0.29	0.27
5	0.49	0.46
TOTAL	1.08	1.02

VALUES FOR THE SEGMENT 98.0 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.05	0.04
2	0.04	0.04
3	0.37	0.35
4	0.43	0.42
5	0.74	0.71
TOTAL	1.63	1.56

VALUES FOR THE SEGMENT 156.0 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.08	0.07
2	0.07	0.07
3	0.62	0.60
4	0.72	0.71
5	1.24	1.20
TOTAL	2.73	2.66

VALUES FOR THE SEGMENT 157.4 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.10	0.10
2	0.09	0.09
3	0.79	0.77
4	0.92	0.90
5	1.57	1.54
TOTAL	3.47	3.40

VALUES FOR THE SEGMENT 158.9 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.09	0.09
2	0.09	0.08
3	0.75	0.74
4	0.88	0.86
5	1.50	1.47

VALUES FOR THE SEGMENT 167.4 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.06	0.06
2	0.05	0.05
3	0.47	0.45
4	0.55	0.53
5	0.93	0.91
TOTAL	2.06	2.00

VALUES FOR THE SEGMENT 163.9 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.05	0.05
2	0.05	0.05
3	0.43	0.41
4	0.50	0.48
5	0.85	0.83
TOTAL	1.88	1.82

VALUES FOR THE SEGMENT 170.3 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.05	0.05
2	0.04	0.04
3	0.39	0.37
4	0.45	0.44
5	0.77	0.75
TOTAL	1.70	1.65

VALUES FOR THE SEGMENT 206.0 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.05	0.05
2	0.04	0.04
3	0.38	0.37
4	0.44	0.43
5	0.76	0.73
TOTAL	1.67	1.62

VALUES FOR STORM 73148 FROM OVERLAND FLOW

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	253.	0.0144	0.0002	231.
2	235.	0.0134	0.0002	215.
3	2052.	0.1170	0.0019	1875.

TOTAL	3.31	3.24

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VALUES FOR THE SEGMENT 160.3 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.09	0.08
2	0.08	0.08
3	0.70	0.69
4	0.82	0.80
5	1.40	1.37
TOTAL	3.09	3.02

VALUES FOR THE SEGMENT 161.7 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.08	0.08
2	0.07	0.07
3	0.65	0.64
4	0.76	0.75
5	1.30	1.27
TOTAL	2.87	2.80

VALUES FOR THE SEGMENT 163.1 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.07	0.07
2	0.07	0.07
3	0.60	0.59
4	0.71	0.69
5	1.20	1.18
TOTAL	2.66	2.59

VALUES FOR THE SEGMENT 164.6 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.07	0.07
2	0.06	0.06
3	0.56	0.54
4	0.65	0.64
5	1.11	1.08
TOTAL	2.45	2.39

VALUES FOR THE SEGMENT 166.0 FT. FROM THE PROFILE TOP

PARTICLE TYPE	NET SOIL LOSS (TONS/ACRE OF SEGMENT)	RILL SOIL LOSS (TONS/ACRE OF SEGMENT)
1	0.06	0.06
2	0.06	0.06
3	0.51	0.50
4	0.60	0.58
5	1.02	0.99
TOTAL	2.25	2.19

3	17.76	12.58
4	20.82	14.74
5	35.51	25.14
TOTAL	78.32	55.46

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VALUES FOR THE SEGMENT 237.4 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	1.73	1.09
2	1.60	1.01
3	13.98	8.80
4	16.39	10.31
5	27.95	17.58
TOTAL	61.64	38.79

VALUES FOR THE SEGMENT 277.0 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	1.57	0.93
2	1.46	0.86
3	12.69	7.51
4	14.88	8.80
5	25.37	15.01
TOTAL	55.96	33.10

VALUES FOR THE SEGMENT 316.6 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	1.39	0.74
2	1.28	0.68
3	11.15	5.97
4	13.07	7.00
5	22.29	11.93
TOTAL	49.17	26.31

VALUES FOR THE SEGMENT 356.2 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	2.23	1.59
2	2.07	1.47
3	18.03	12.85
4	21.14	15.06
5	36.05	25.68
TOTAL	79.51	56.65

VALUES FOR THE SEGMENT 395.7 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	1.64	1.00
2	1.41	0.82
3	8.49	3.30

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4	2405.	0.1371	0.0022	2191.
5	4101.	0.2338	0.0037	3747.
TOTAL	9046.	0.5157	0.0083	8265.

AVERAGE SOIL LOSS FOR AREA 1.41 TONS/ACRE

VALUES FOR THE SEGMENT 39.6 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	0.70	0.06
2	0.65	0.06
3	5.68	0.50
4	6.66	0.58
5	11.36	0.99
TOTAL	25.05	2.19

VALUES FOR THE SEGMENT 79.1 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	0.93	0.29
2	0.86	0.27
3	7.54	2.35
4	8.84	2.76
5	15.07	4.71
TOTAL	33.24	10.38

VALUES FOR THE SEGMENT 118.7 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	1.59	0.95
2	1.48	0.89
3	12.91	7.72
4	15.13	9.05
5	25.80	15.44
TOTAL	56.92	34.06

VALUES FOR THE SEGMENT 158.3 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	2.19	1.55
2	2.03	1.44
3	17.73	12.54
4	20.78	14.70
5	35.44	25.07
TOTAL	78.16	55.30

VALUES FOR THE SEGMENT 197.9 FT. FROM THE CHANNEL TOP

PARTICLE TYPE	NET SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)	CHAN SOIL LOSS (LBS/FT OF CHANNEL SEGMENT)
1	2.19	1.55
2	2.04	1.44

4	-92.66	-96.74
5	-176.30	-186.06
TOTAL	-259.42	-282.28

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VALUES FOR STORM 73148 FROM CHANNEL ONE

PEAK DISCHARGE UPPER END 0.478 FT**3/SEC
PEAK DISCHARGE LOWER END 7.647 FT**3/SEC
CONTROL DEPTH 1.671 FT

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	637.	0.0363	0.0006	582.
2	587.	0.0335	0.0005	537.
3	4973.	0.2835	0.0045	4543.
4	1768.	0.1008	0.0016	1615.
5	2213.	0.1262	0.0020	2022.
TOTAL	10178.	0.5803	0.0093	9299.

AVERAGE SOIL LOSS FOR AREA 1.59 TONS/ACRE

VALUES FOR STORM 73148 FROM IMPOUNDMENT

PEAK DISCHARGE FROM POND 0.356 FT**3/SEC

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	527.	0.0301	0.0005	482.
2	194.	0.0111	0.0002	177.
3	273.	0.0156	0.0002	250.
4	1.	0.0001	0.0000	1.
5	0.	0.0000	0.0000	0.
TOTAL	863.	0.0567	0.0009	909.

AVERAGE SOIL LOSS FOR AREA 0.13 TONS/ACRE

DISTRIBUTION OF PRIMARY PARTICLES AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.643
SILT	0.357
SAND	0.001
ORGANIC MATTER	0.046

INDEX OF SPECIFIC SURFACE 40.19 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 4.286

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C R E A M S NONPOINT SOURCE POLLUTION MODEL (EROSION/SEDIMENT YIELD)

VERSION 1.5 JUL 22, 1981 TIFTON GA

EROSION PARAMETERS - GEORGIA PIEDMONT
MANAGEMENT PRACTICE THREE
CONTINUOUS CORN - CONVENTIONAL TILLAGE

STORM SUMMARY

1 STORMS PRODUCED 4.27 IN. OF RAINFALL
1 STORMS PRODUCED 1.51 IN. OF RUNOFF

THE QUANTITY OF ERODED SEDIMENT IN RUNOFF
VALUES FOR ALL STORMS

PART. TYPE	SOIL LOSS LBS.	CONCENTRATIONS (SOIL/WATER) LBSF/FT**3	LBSF/LBSF	PPM (WT)
1	527.	0.0301	0.0005	482.
2	194.	0.0111	0.0002	177.
3	273.	0.0156	0.0002	250.
4	1.	0.0001	0.0000	1.
5	0.	0.0000	0.0000	0.
TOTAL	995.	0.0567	0.0009	909.

TOTAL SOIL LOSS FOR AREA 0.13 TONS/ACRE
(AREA = 3.2000 ACRES)

DISTRIBUTION OF PRIMARY PARTICLES
AND ORGANIC MATTER IN THE ERODED SEDIMENT

TYPE	FRACTION
CLAY	0.643
SILT	0.357
SAND	0.001
ORGANIC MATTER	0.046

INDEX OF SPECIFIC SURFACE 40.19 M**2/G OF TOTAL SEDIMENT

ENRICHMENT RATIO OF SPECIFIC SURFACE 4.286

APPENDIX 7 - NUTRIENT INPUT - OUTPUT

EXAMPLES AND EXPLANATIONS

INPUT

The nutrient model is part of the chemistry component of CREAMS. To run this model, two data files are required. The computer generates a pass file from the erosion/sediment yield component, and the user develops a nutrient parameter file. The development of the nutrient parameter file is discussed in chapter 5. NOTE: When running the nutrient model, the values on Card 4 for FLGPST must be 0, and FLGNUT must be 1.

The input file for nutrients looks like this.

CARD NO	CHEMISTRY PARAMETER DATA
1	NUTRIENTS PARAMETERS - GEORGIA PIEDMONT
2	MANAGEMENT PRACTICE ONE
3	CONTINOUS CORN - CONVENTIONAL TILLAGE
4	73138 1 0 0 1
5	0.410 0.320 0.650
7	2
8	0.200 0.200 20.000 0.00035 0.00018 0.05760 0.07000 16.8000 -0.1600 11.2000
9	-0.146 0.800
10	73305
15	2 141 305
16	450.0005700.000 2.500 47.000 73.000 30.000 250.000
18	73131
19	28.000 28.000 0.100
18	73174
19	112.000 0.000 1.000
10	74305
15	2 129 305
16	450.0005700.000 2.500 47.000 73.000 30.000 250.000
18	74119
19	28.000 28.000 0.100
18	74162
19	112.000 0.000 1.000
10	75305
15	2 151 305
16	450.0005700.000 2.500 47.000 73.000 30.000 250.000
18	75141
19	28.000 28.000 0.100
18	75176
19	112.000 0.000 1.000
10	75365
15	0 151 305
16	450.0005700.000 2.500 47.000 73.000 30.000 250.000
10	0

OUTPUT

The computer output received from running the nutrient model of CREAMS can have three formats. Depending on how detailed an output you would like to see, you can request annual summary output, annual and monthly summary output or individual storm and all summary output.

All of the output options begin with a portion of printout that lists the majority of input information. This section is well labeled.

Following this is the section that contains the results of the computations of the program. It should be noted in the section labeled: "The Plant Nutrient Losses" that values for "Estimate 1 Nitrate Leached" and "Burns Estimate" are given. These are the minimum and maximum values for nitrate leaching. As this is a very difficult value to determine, the actual value should be between those given. If individual storm output is requested, the same values that you received on your annual and monthly summaries will be given, plus the following:

1. Nitrogen in runoff in ppm
2. Phosphorus in runoff in ppm
3. Soluble N in surface active layer
4. Soluble P in surface active layer
5. Information regarding the storm

The following is an example of nutrient output on an annual summary and monthly summary.

ANNUAL SUMMARY FOR 1973

44 STORMS PRODUCED	70.59 CM. OF RAINFALL
17 STORMS PRODUCED	8.38 CM. OF RUNOFF

THE PLANT NUTRIENT LOSSES

NITROGEN IN RUNOFF	1.0847 KG/HA
PHOSPHORUS IN RUNOFF	0.2939 KG/HA
NITROGEN WITH SEDIMENT	9.9969 KG/HA
PHOSPHORUS WITH SEDIMENT	3.8212 KG/HA
ACCUMULATED DRAINAGE	101.85 MM
MINERALIZED N	23.3455 KG/HA
N UPTAKE	113.2426 KG/HA
SOIL NITRATE	18.7854 KG/HA
RAINFALL NITRATE	5.6469 KG/HA
ESTIMATE 1 NITRATE LEACHED	19.0763 KG/HA
BURNS ESTIMATE	46.9971 KG/HA
ACCUMULATED DENITRIFICATION	36.8488 KG/HA

MONTHLY SUMMARY FOR DEC 1973

9 STORMS PRODUCED	17.09 CM. OF RAINFALL
4 STORMS PRODUCED	3.48 CM. OF RUNOFF

THE PLANT NUTRIENT LOSSES

NITROGEN IN RUNOFF	0.4312 KG/HA
PHOSPHORUS IN RUNOFF	0.1188 KG/HA
NITROGEN WITH SEDIMENT	0.6927 KG/HA
PHOSPHORUS WITH SEDIMENT	0.2532 KG/HA
ACCUMULATED DRAINAGE	55.63 MM
MINERALIZED N	1.8088 KG/HA
N UPTAKE	0.0 KG/HA
SOIL NITRATE	18.7854 KG/HA
RAINFALL NITRATE	1.3675 KG/HA
ESTIMATE 1 NITRATE LEACHED	9.7405 KG/HA
BURNS ESTIMATE	35.7918 KG/HA
ACCUMULATED DENITRIFICATION	11.2049 KG/HA

APPENDIX 8 - PESTICIDE INPUT - OUTPUT

EXAMPLES AND EXPLANATIONS

INPUT

The two files required to run the pesticide model of CREAMS are the same computer generated erosion pass file (from the erosion/sediment yield component) as used in nutrients and a user developed file of pesticide parameters. This parameter file is described in chapter 6. NOTE: When running the pesticide model, the value on card 4 for FLGPST must be 1, and the value for FLGNUT must be 0. The following is an example of an input file:

CARD NO	CHEMISTRY PARAMETER DATA
1	PESTICIDES PARAMETERS - GEORGIA PIEDMONT
2	MANAGEMENT PRACTICE ONE
3	CONTINOUS CORN - CONVENTIONAL TILLAGE
4	73138 0 0 1 0
5	0.410 0.320 0.650
6	2 74120 75365
10	73131
11	73121
12	ATRAZINE
13	3.360 1.000 1.000 0.000 1.000 0.000 0.000 0.000 0.000
14	33.0 0.0 0.1000 0.1000 2.0
11	0
10	74120
11	0
11	73132
12	PARAQUAT
13	2.049 1.000 1.000 0.000 1.000 0.000 0.000 0.000 0.000
14	500000.0 0.0 0.1000 0.0070100000.0
10	74131
11	74121
12	ATRAZINE
13	3.360 1.000 1.000 0.000 1.000 0.000 0.000 0.000 0.000
14	33.0 0.0 0.1000 0.1000 2.0
11	0
10	75120
11	0
11	74132
12	PARAQUAT
13	2.049 1.000 1.000 0.000 1.000 0.000 0.000 0.000 0.000
14	500000.0 0.0 0.1000 0.0070100000.0
10	75131
11	75121
12	ATRAZINE
13	3.360 1.000 1.000 0.000 1.000 0.000 0.000 0.000 0.000
14	33.0 0.0 0.1000 0.1000 2.0
11	0
10	75366
11	0
11	75132
12	PARAQUAT
13	2.049 1.000 1.000 0.000 1.000 0.000 0.000 0.000 0.000
14	500000.0 0.0 0.1000 0.0070100000.0
10	0

OUTPUT

The output from the pesticide model begins with a section that is obtained from input data. This lists the detailed information regarding each pesticide applied, and there is some basic soils information. Following this, the portion of the output that contains the results of the computations. This varies, depending on the output option you chose. The monthly and annual summaries will show the "Total Mass" and "Percent of Application" for each pesticide under the heading, "The Pesticide Losses." When the word "Residue" is printed for percent of application it means there is a very small amount of the application lost (less than 0.01 percent). If you request individual storm output, you will receive a more detailed output. This will be titled "The Quantity of Pesticide in Runoff." Values given will include mass and concentration in both water and sediment. NOTE: UG/G and UG/ML are equal to PPM.

An example of annual summary and monthly summary ouput looks like the following:

ANNUAL SUMMARY FOR 1974

67 STORMS PRODUCED	102.26 CM. OF RAINFALL
14 STORMS PRODUCED	8.94 CM. OF RUNOFF

THE PESTICIDE LOSSES

PESTICIDE NAME	TOTAL MASS G/HA	PERCENT OF APPLICATION
ATRAZINE	5.30	0.16
PARAGUAT	148.46	7.25

MONTHLY SUMMARY FOR DEC 1974

8 STORMS PRODUCED	12.50 CM. OF RAINFALL
4 STORMS PRODUCED	0.53 CM. OF RUNOFF

THE PESTICIDE LOSSES

PESTICIDE NAME	TOTAL MASS G/HA	PERCENT OF APPLICATION
ATRAZINE	0.0	RESIDUE
PARAGUAT	0.00	RESIDUE

APPENDIX 8 - PESTICIDE INPUT - OUTPUT

EXAMPLES AND EXPLANATIONS

INPUT

The two files required to run the pesticide model of CREAMS are the same computer generated erosion pass file (from the erosion/sediment yield component) as used in nutrients and a user developed file of pesticide parameters. This parameter file is described in chapter 6. NOTE: When running the pesticide model, the value on card 4 for FLGPST must be 1, and the value for FLGNUT must be 0. The following is an example of an input file:

CARD NO	CHEMISTRY PARAMETER DATA								
1	PESTICIDES PARAMETERS - GEORGIA PIEDMONT								
2	MANAGEMENT PRACTICE ONE								
3	CONTINOUS CORN - CONVENTIONAL TILLAGE								
4	73138	0	0	1	0				
5	0.410	0.320	0.650						
6	2	74120	75365						
10		73131							
11	73121								
12	ATRAZINE								
13	3.360	1.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000
14	33.0	0.0	0.1000	0.1000	2.0				
11	0								
10		74120							
11	0								
11	73132								
12	PARAQUAT								
13	2.049	1.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000
14	500000.0	0.0	0.1000	0.0070100000.0					
10		74131							
11	74121								
12	ATRAZINE								
13	3.360	1.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000
14	33.0	0.0	0.1000	0.1000	2.0				
11	0								
10		75120							
11	0								
11	74132								
12	PARAQUAT								
13	2.049	1.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000
14	500000.0	0.0	0.1000	0.0070100000.0					
10		75131							
11	75121								
12	ATRAZINE								
13	3.360	1.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000
14	33.0	0.0	0.1000	0.1000	2.0				
11	0								
10		75366							
11	0								
11	75132								
12	PARAQUAT								
13	2.049	1.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000
14	500000.0	0.0	0.1000	0.0070100000.0					
10		0							

OUTPUT

The output from the pesticide model begins with a section that is obtained from input data. This lists the detailed information regarding each pesticide applied, and there is some basic soils information. Following this, the portion of the output that contains the results of the computations. This varies, depending on the output option you chose. The monthly and annual summaries will show the "Total Mass" and "Percent of Application" for each pesticide under the heading, "The Pesticide Losses." When the word "Residue" is printed for percent of application it means there is a very small amount of the application lost (less than 0.01 percent). If you request individual storm output, you will receive a more detailed output. This will be titled "The Quantity of Pesticide in Runoff." Values given will include mass and concentration in both water and sediment. NOTE: UG/G and UG/ML are equal to PPM.

An example of annual summary and monthly summary ouput looks like the following:

ANNUAL SUMMARY FOR 1974

67 STORMS PRODUCED 102.26 CM. OF RAINFALL
14 STORMS PRODUCED 8.94 CM. OF RUNOFF

THE PESTICIDE LOSSES

PESTICIDE NAME	TOTAL MASS G/HA	PERCENT OF APPLICATION
ATRAZINE	5.30	0.16
PARAGUAT	148.46	7.25

MONTHLY SUMMARY FOR DEC 1974

8 STORMS PRODUCED 12.50 CM. OF RAINFALL
4 STORMS PRODUCED 0.53 CM. OF RUNOFF

THE PESTICIDE LOSSES

PESTICIDE NAME	TOTAL MASS G/HA	PERCENT OF APPLICATION
ATRAZINE	0.0	RESIDUE
PARAGUAT	0.00	RESIDUE

APPENDIX 9

CODING SHEETS FOR CREAMS

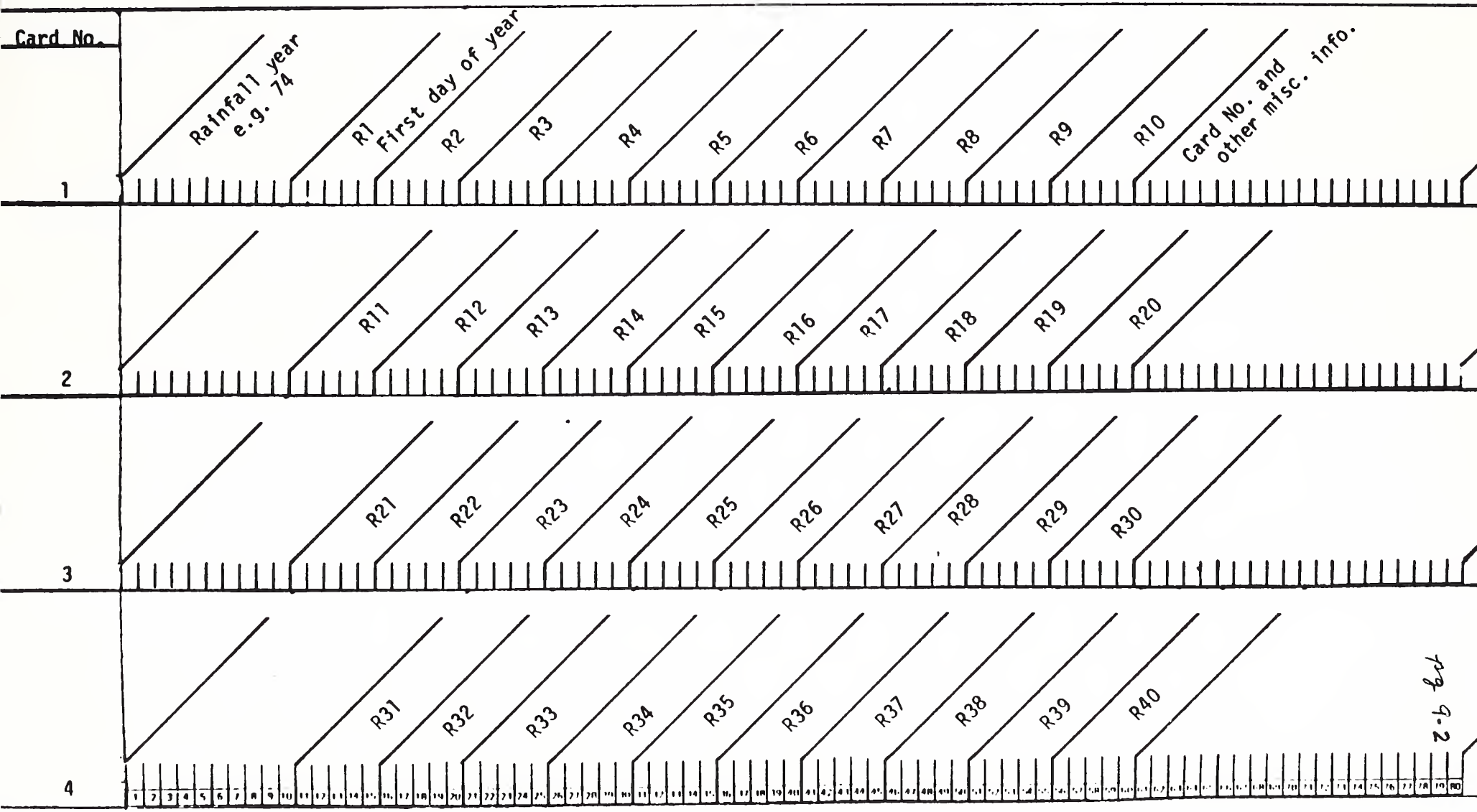
CREAMS

DAILY PRECIPITATION CODING SHEET

SHEET 1 OF ___

Watershed _____, County _____, State _____, Prepared by _____, Date _____

Rainfall data is right justified and in 2 decimal places (Decimal must be punched)

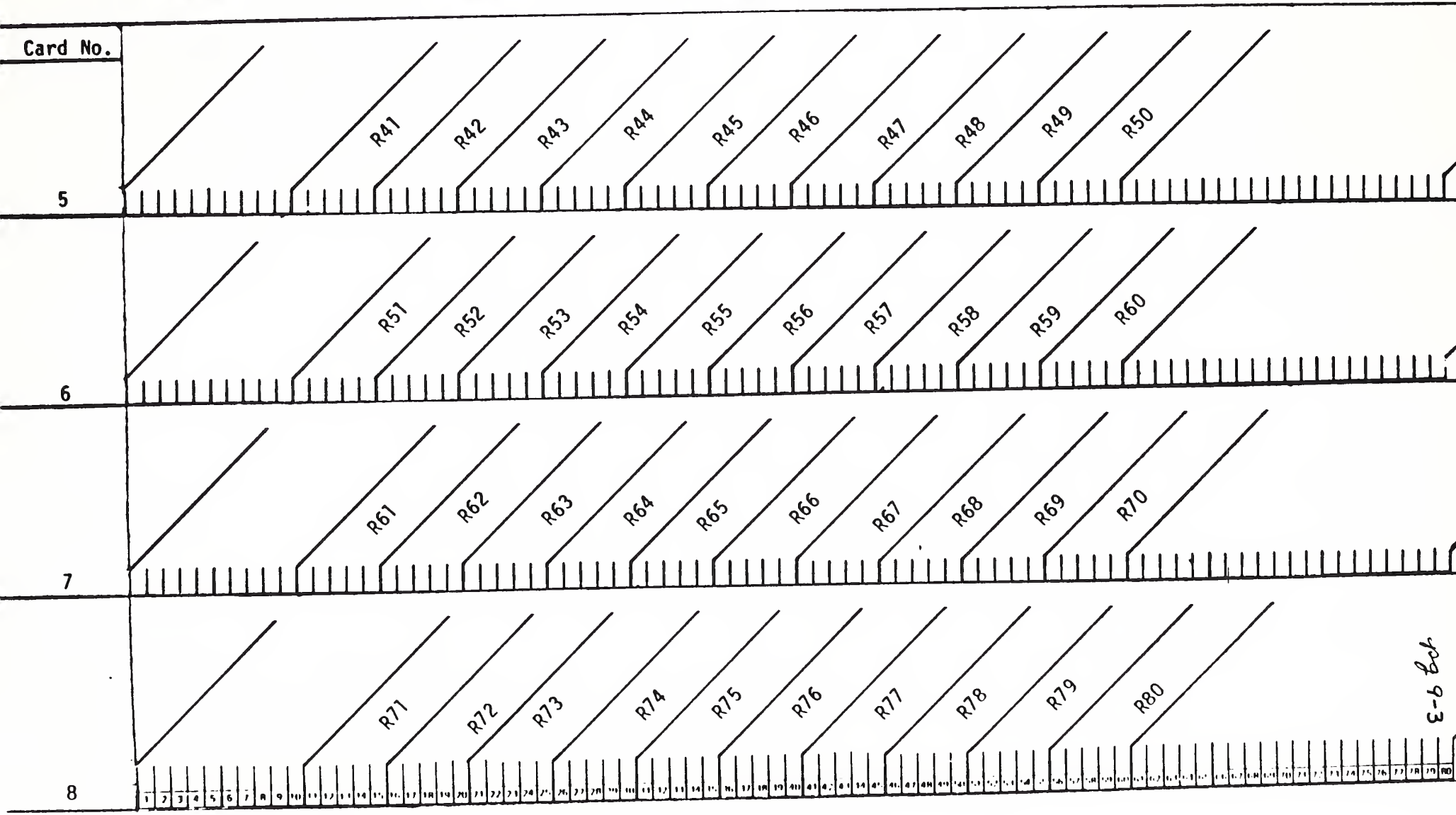


CREAMS

DAILY PRECIPITATION CODING SHEET

SHEET 2 OF ___

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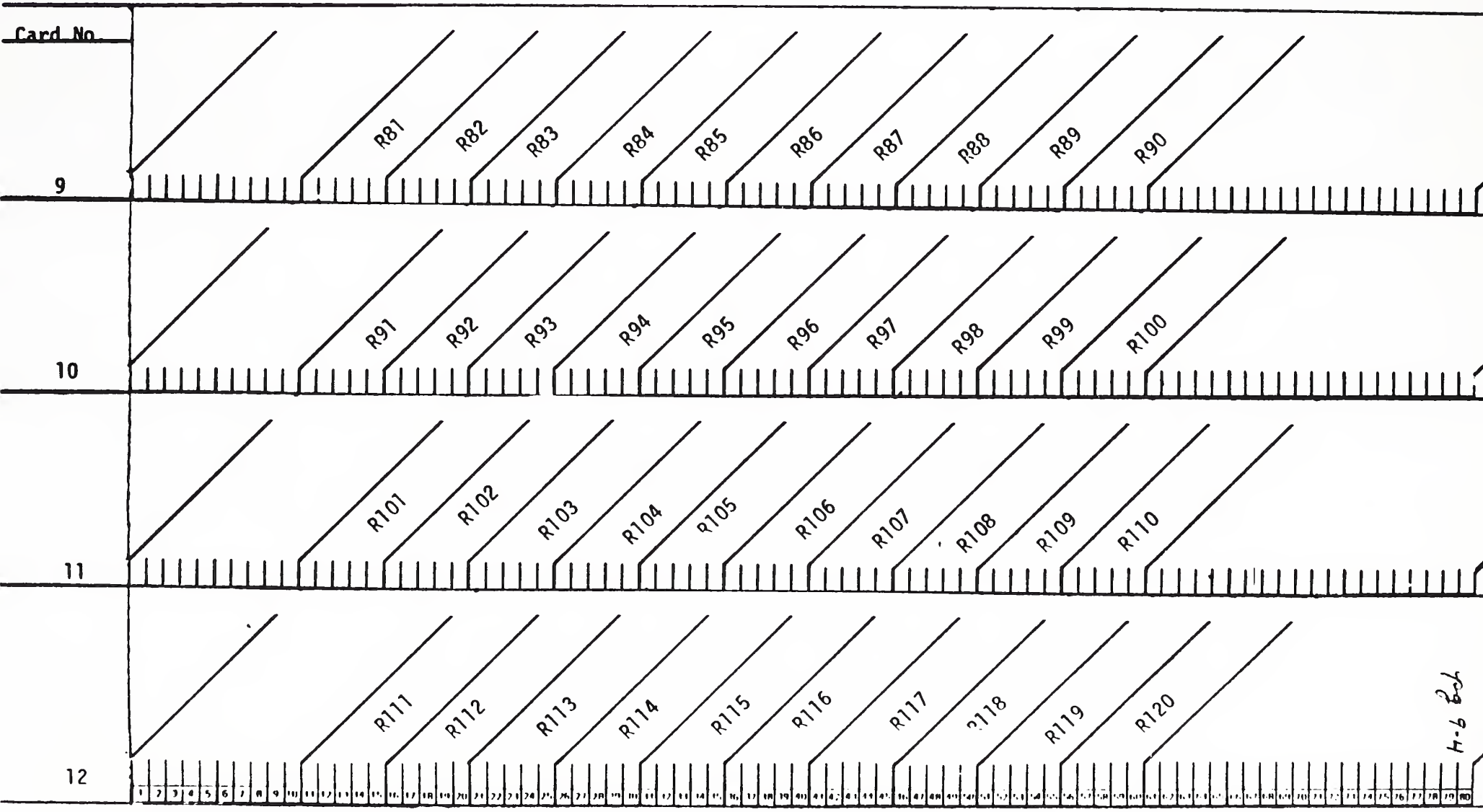
3-4 Bch

CREAMS

DAILY PRECIPITATION CODING SHEET

SHEET 3 OF ___

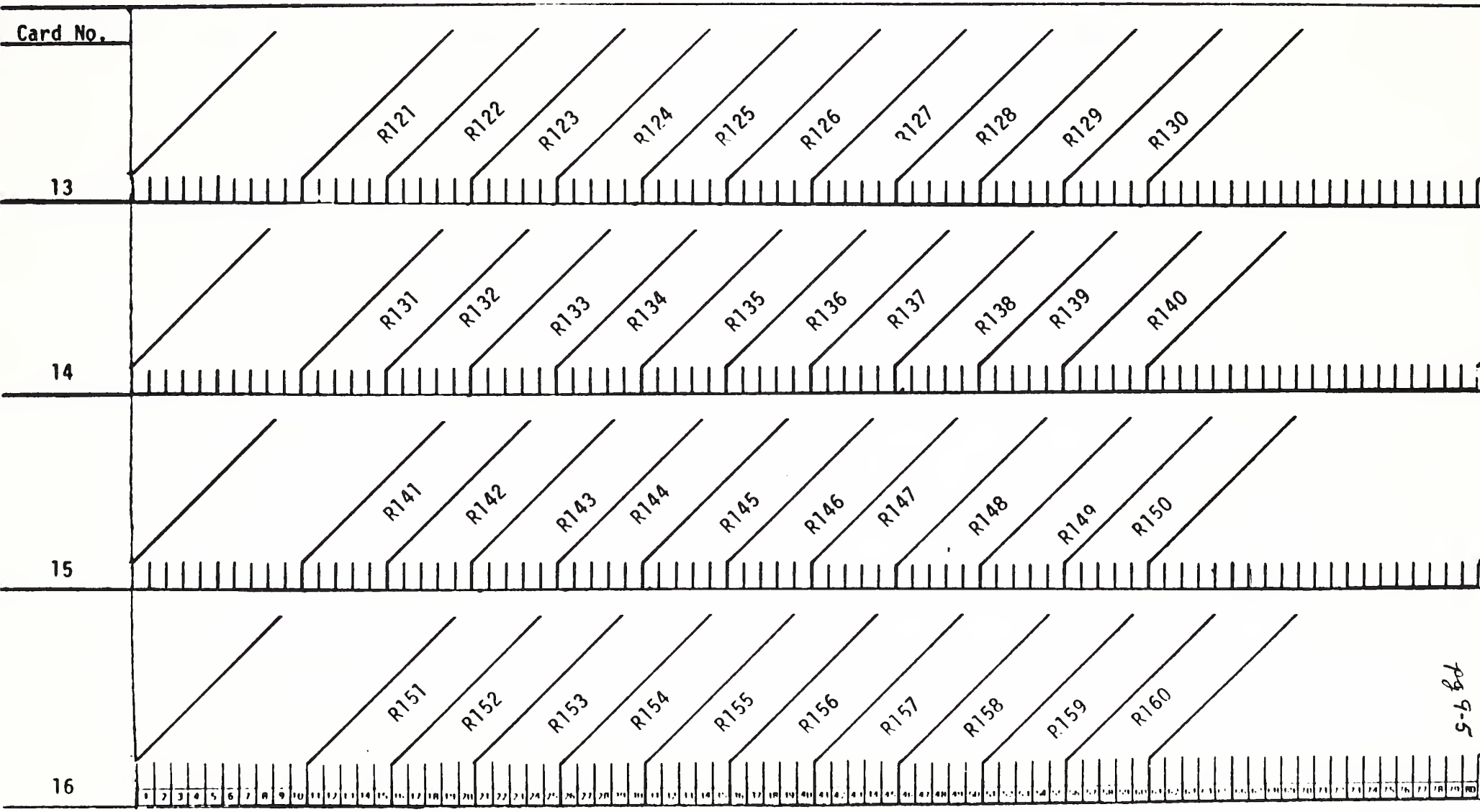
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CREAMS

DAILY PRECIPITATION CODING SHEET SHEET 4 OF ___

Watershed _____, County _____, State _____, Prepared by _____, Date _____

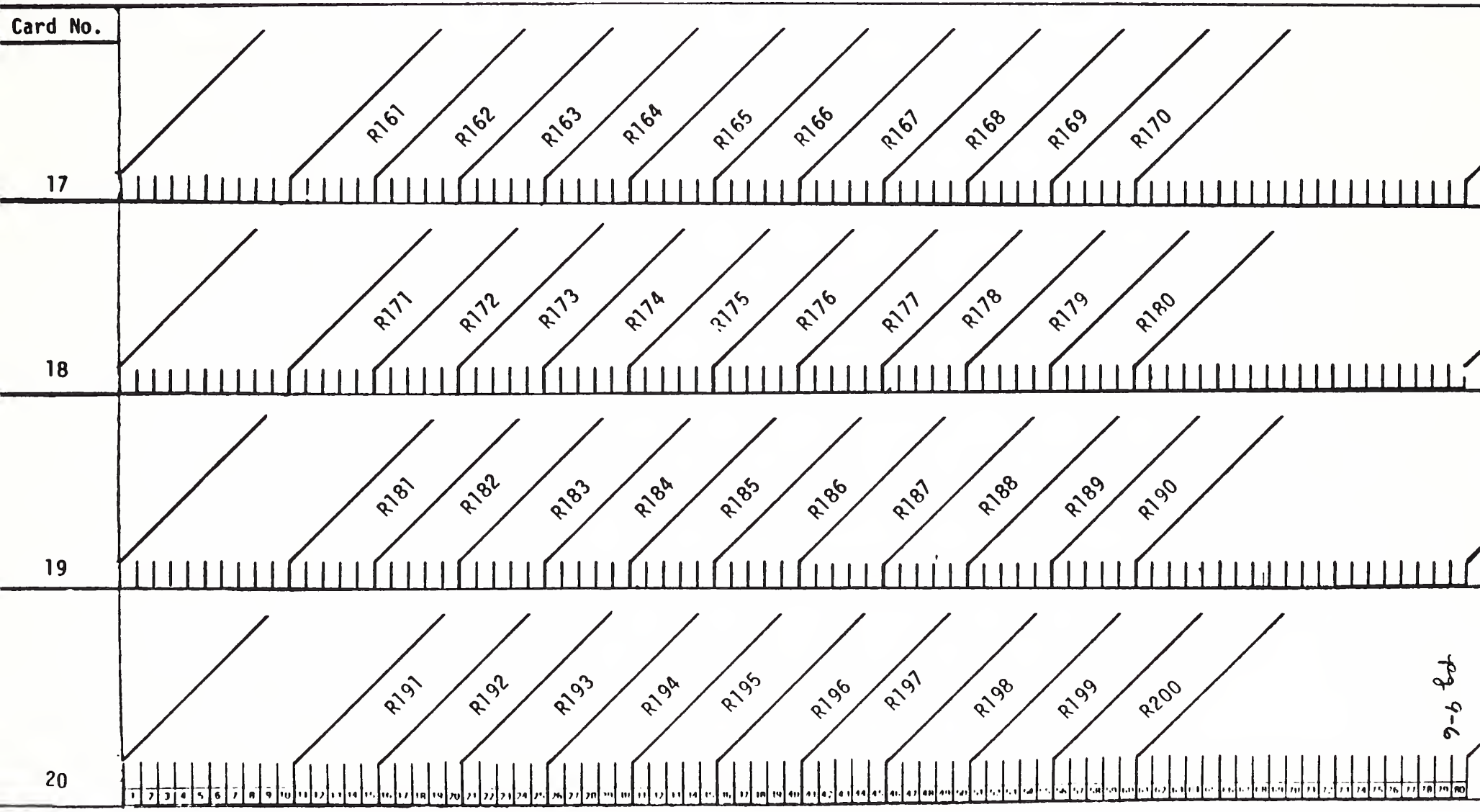


pg 4-5

CREAMS

DAILY PRECIPITATION CODING SHEET SHEET 5 OF ___

Watershed _____, County _____, State _____, Prepared by _____, Date _____

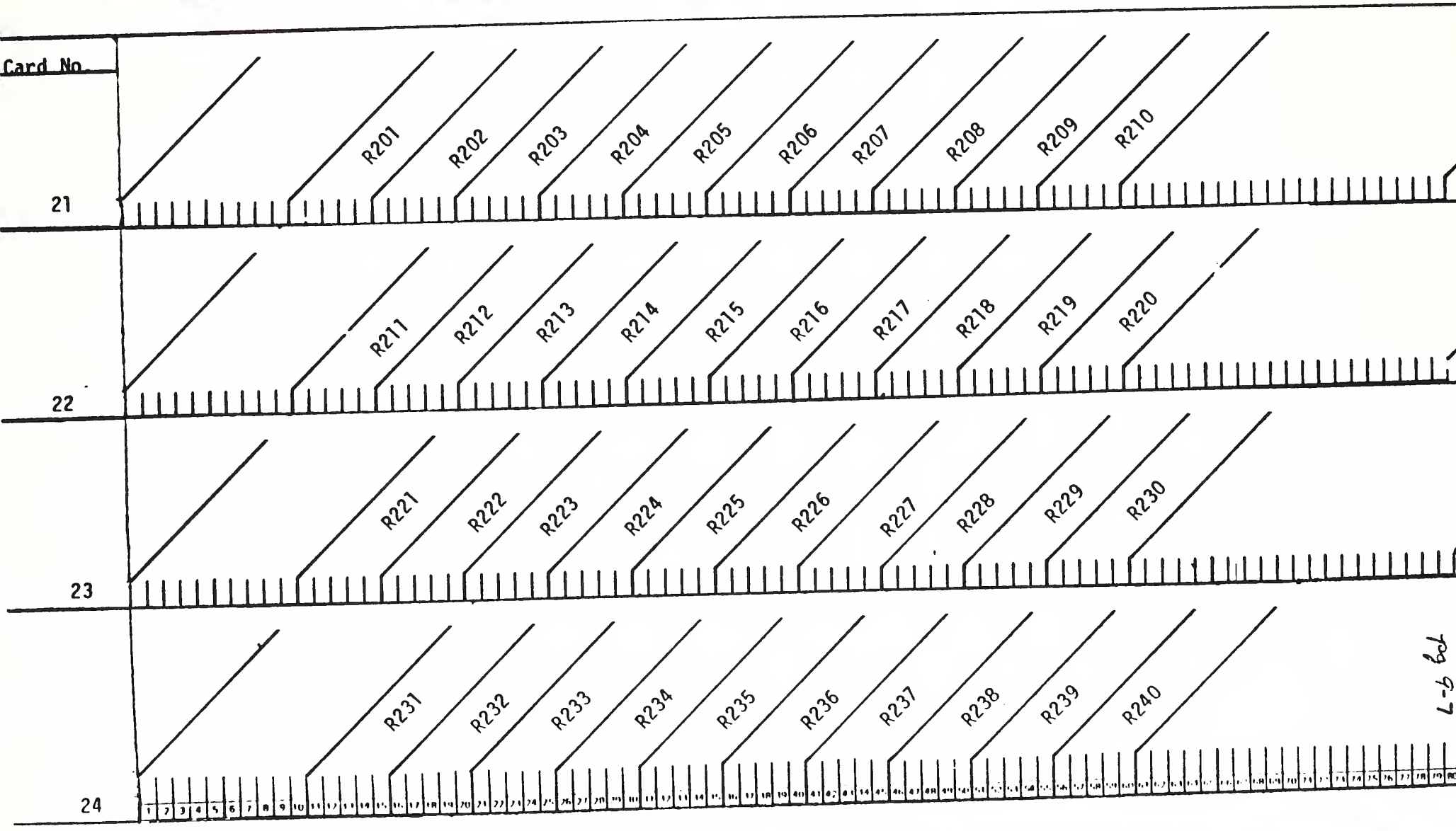


CREAMS

DAILY PRECIPITATION CODING SHEET

SHEET 6 OF ____

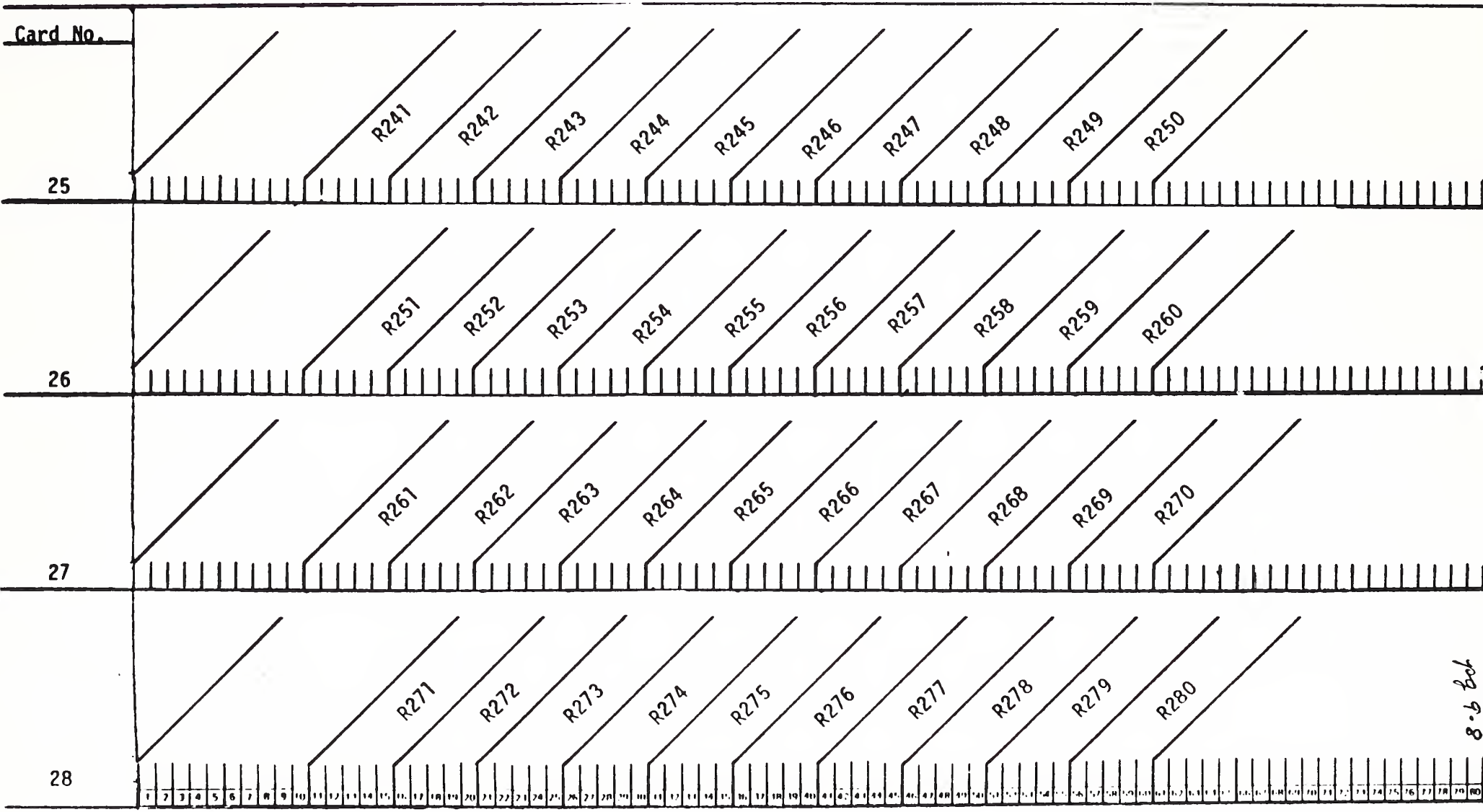
Watershed _____, County _____, State _____, Prepared by _____, Date _____



CREAMS

DAILY PRECIPITATION CODING SHEET SHEET 7 OF ___

Watershed _____, County _____, State _____, Prepared by _____, Date _____

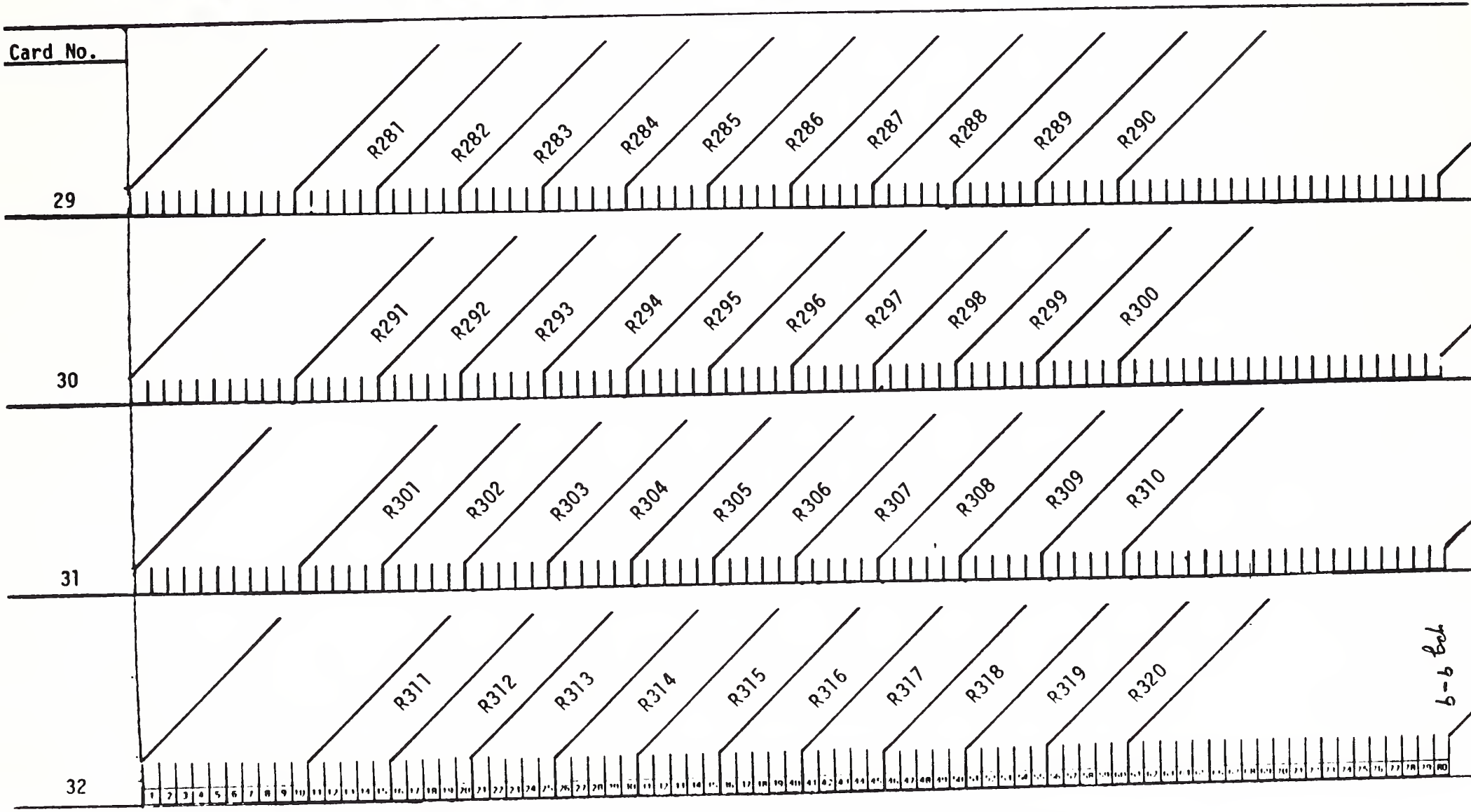


CREAMS

DAILY PRECIPITATION CODING SHEET

SHEET 8 OF ___

Watershed _____, County _____, State _____, Prepared by _____, Date _____

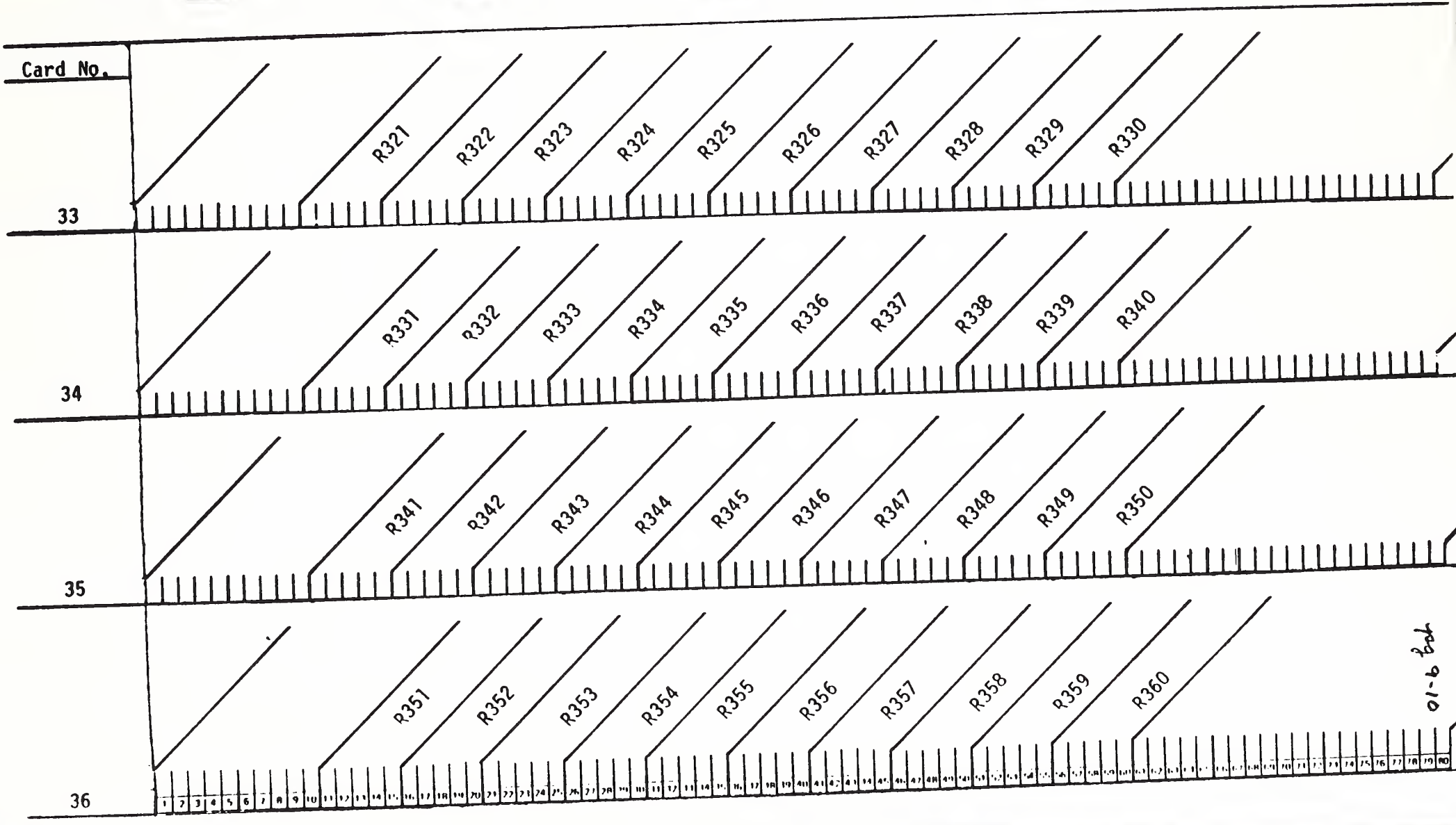


CREAMS

DAILY PRECIPITATION CODING SHEET

SHEET 9 OF ___

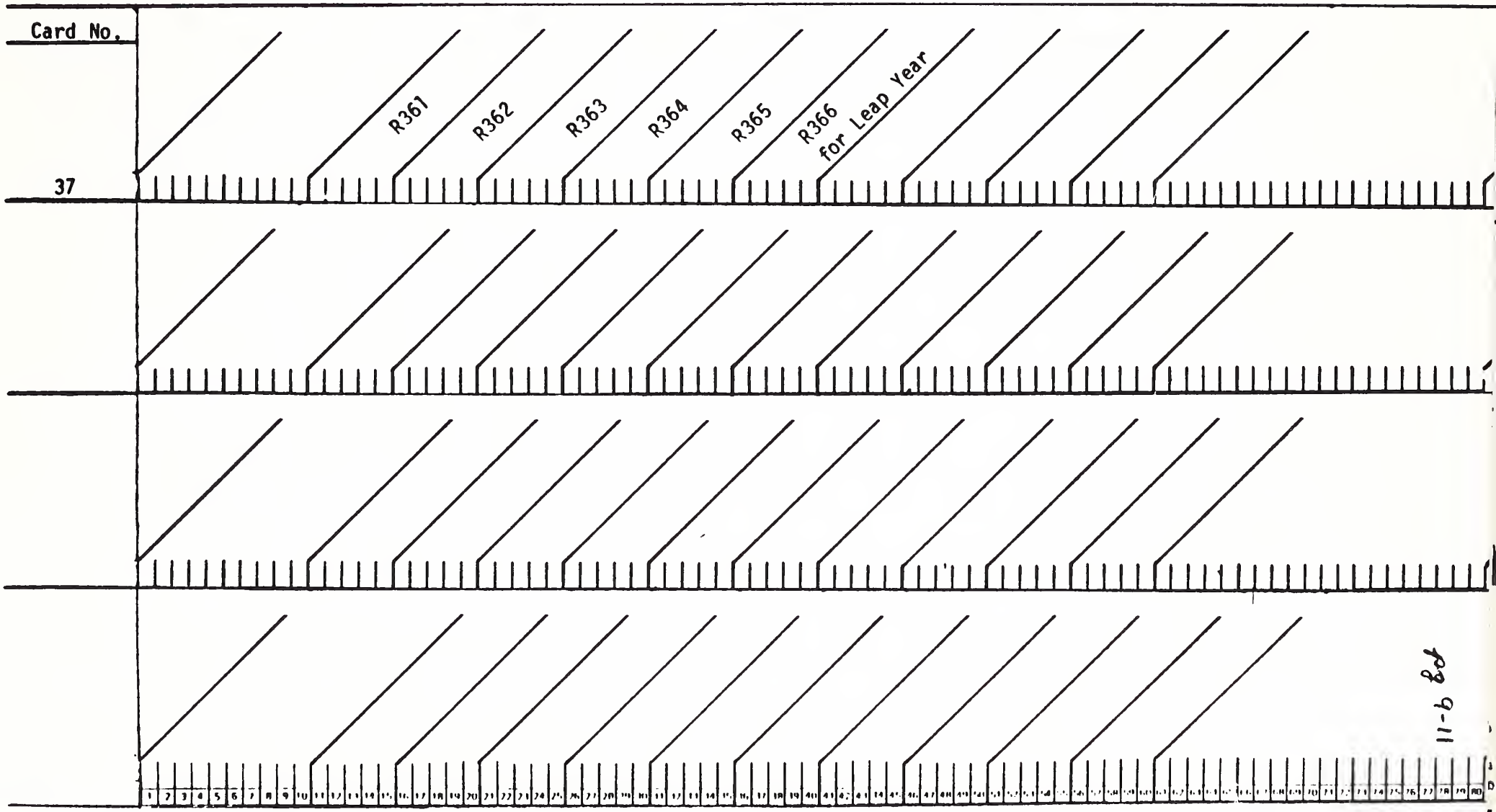
Watershed _____, County _____, State _____, Prepared by _____, Date _____



CREAMS

DAILY PRECIPITATION CODING SHEET SHEET 10 OF ___

Watershed _____, County _____, State _____, Prepared by _____, Date _____



CREAMS

HYDROLOGY PARAMETERS CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____

Card No.	
1	Cards 1, 2, 3 are for Title and Project Description
2	
3	
4	BDATE e.g. 73000 Col. 1-8; FLGOUT Col. 9-16; FLGPAS Col. 17-24; FLGOPT Col. 25-32; FLGPRE Col. 33-40
5	DACRE e.g. 3.2 Col. 1-8; RC e.g. 0.19 Col. 9-16; FUL e.g. 0.75 Col. 17-24; BST e.g. 0.50 Col. 25-32; CONA e.g. 3.75 Col. 33-40; POROS e.g. 0.41 Col. 41-48; BR15 e.g. 0.17 Col. 49-56
6	SIA e.g. 0.2 Col. 1-8; CNZ e.g. 80.0 Col. 9-16; CHS e.g. 0.022 Col. 17-24; WLW e.g. 2.1 Col. 25-32; RD e.g. 24.0 Col. 33-40

For Option 1,
Daily rainfall model

21-6 bch

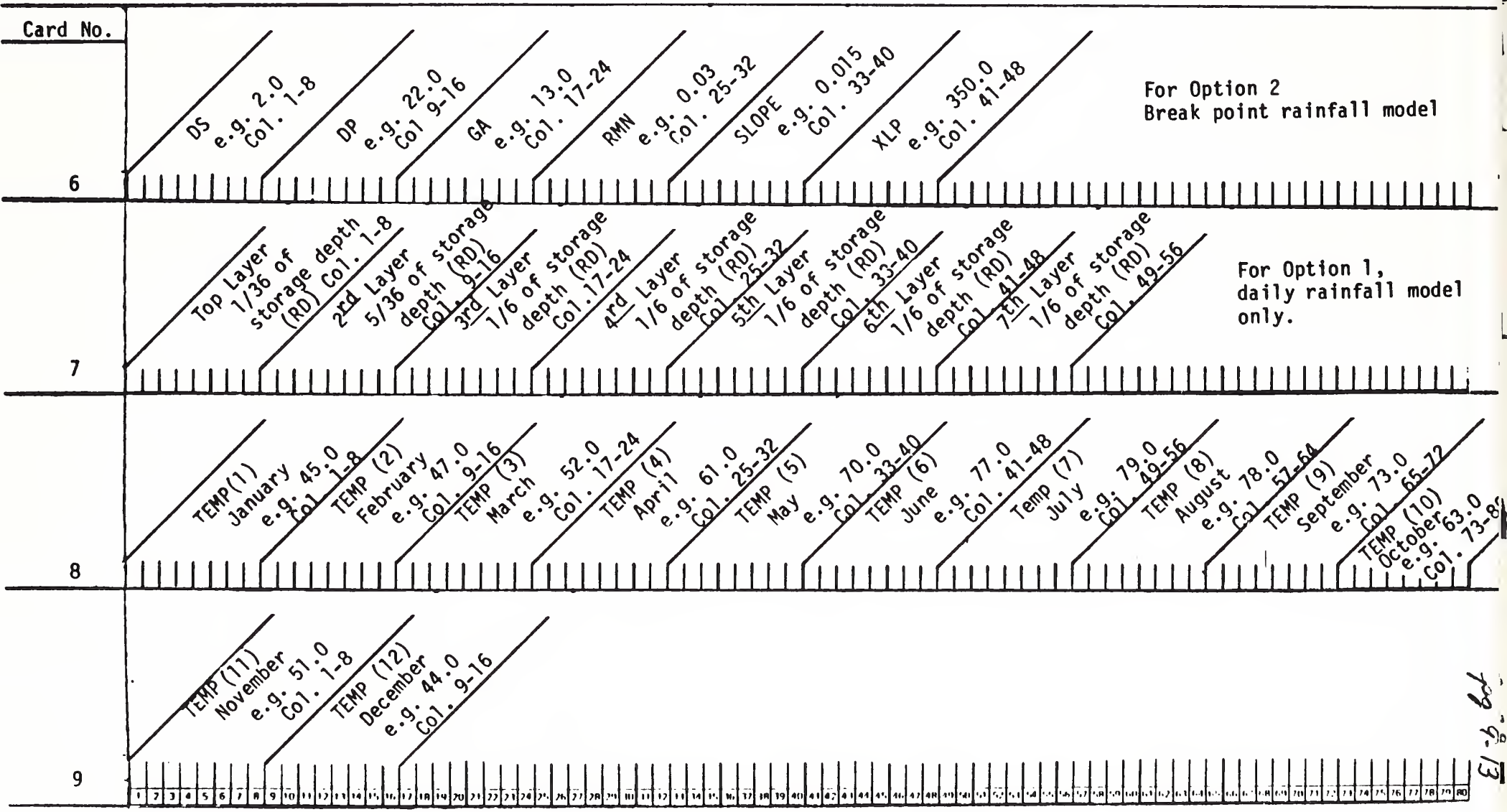
CREAMS

HYDROLOGY PARAMETERS CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____



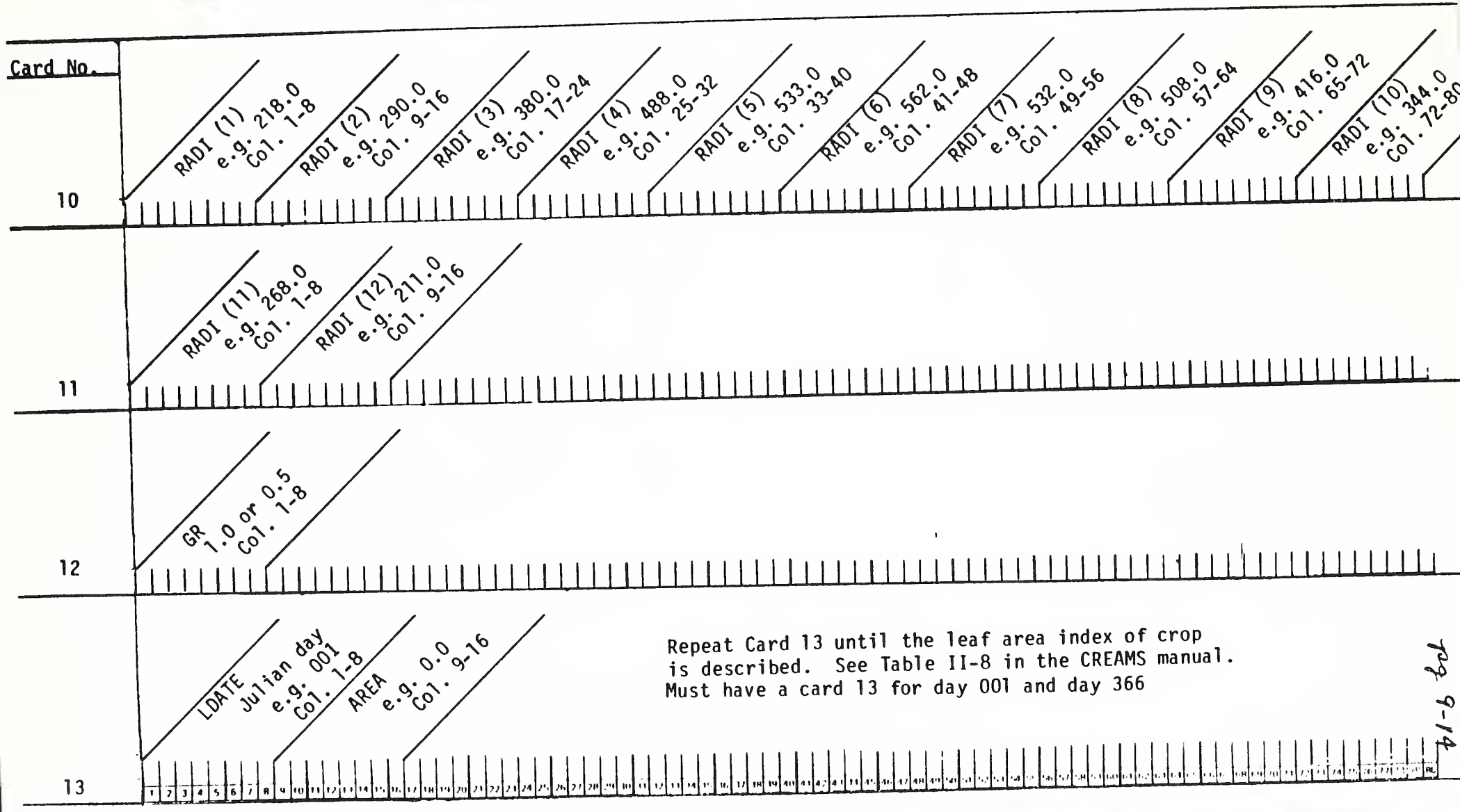
CREAMS

HYDROLOGY PARAMETERS CODING SHEET

Note

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Watershed _____, County _____, State _____, Prepared by _____, Date _____



Repeat Card 13 until the leaf area index of crop is described. See Table II-8 in the CREAMS manual. Must have a card 13 for day 001 and day 366

pg 9-14

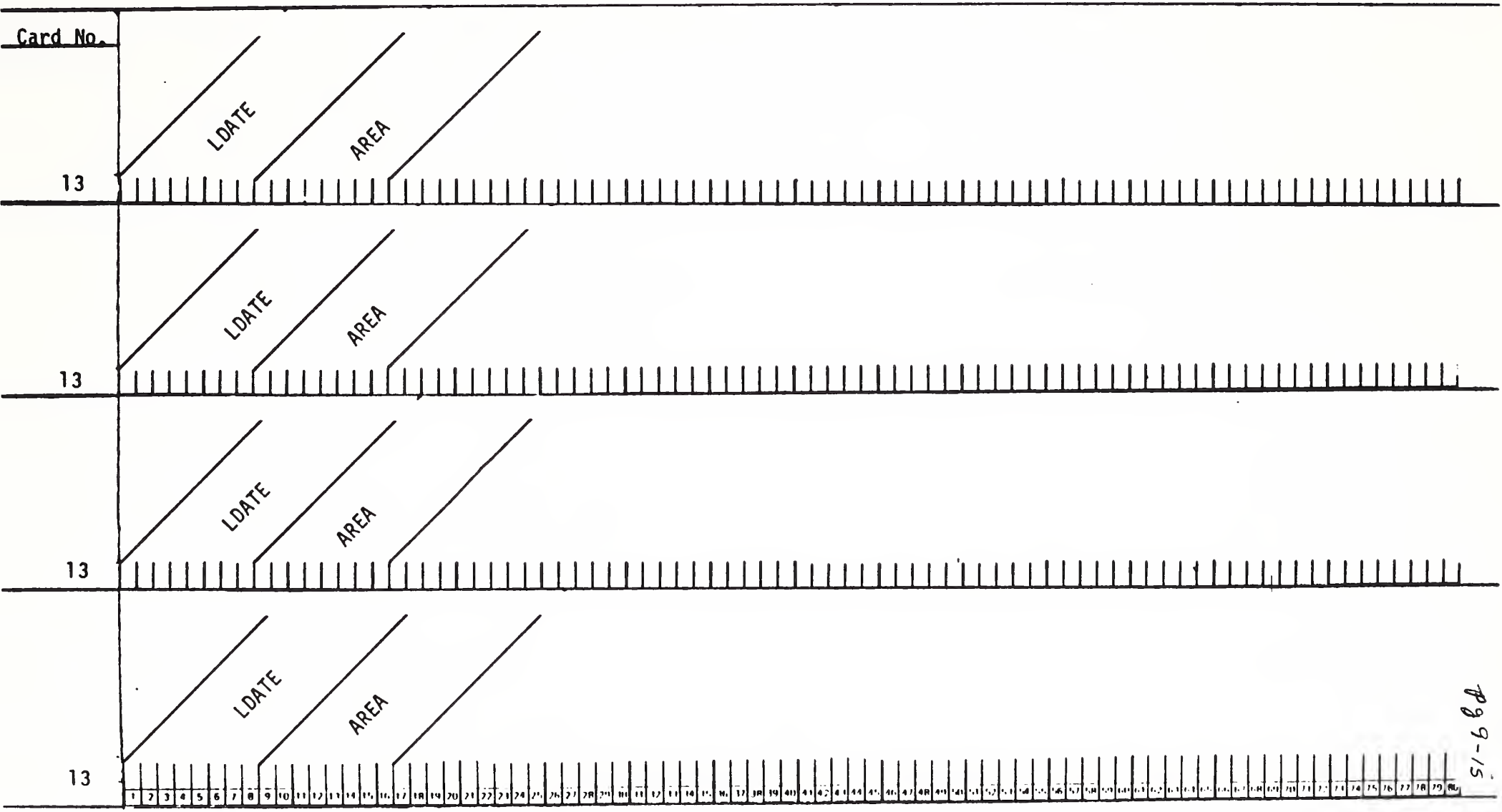
CREAMS

HYDROLOGY PARAMETERS CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____



P99-15

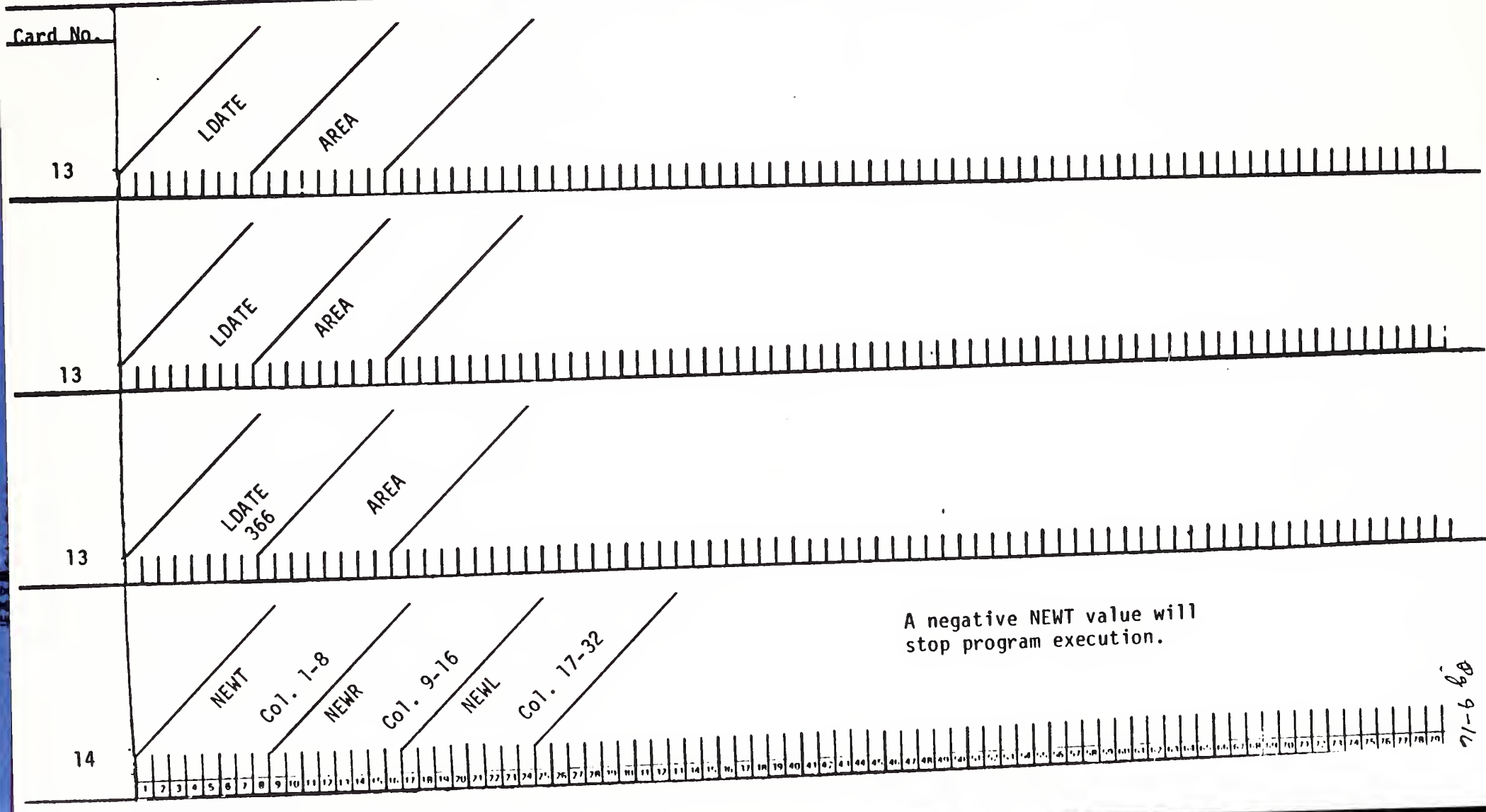
CREAMS

HYDROLOGY PARAMETERS CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____



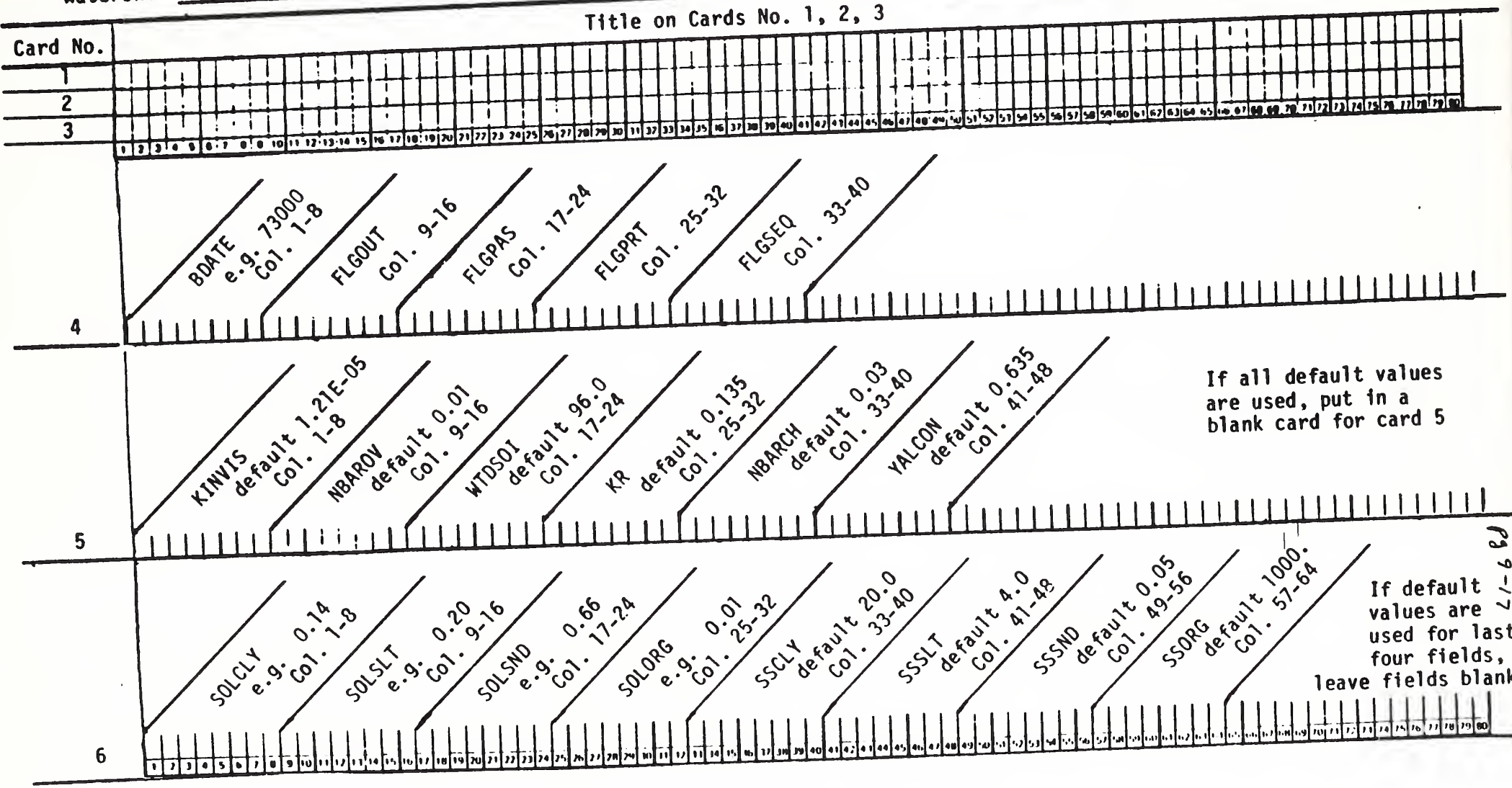
CREAMS

EROSION AND SEDIMENT YIELD CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____



CREAMS

EROSION AND SEDIMENT YIELD CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____

Card No.

7

NPART e.g. 5 Col 1-8

If FLGPRT on card 4 is 0, then card 7 and 8 will not be read, and the values for card 7 and 8 will be calculated by the model.

DO NOT INCLUDE BLANK CARDS

8

DIAM e.g. 0.030 Col. 1-8

SPG e.g. 1.8 Col. 9-16

FRAC e.g. 0.50 Col. 17-24

FRCLY e.g. 0.3 Col. 25-32

FRSLT e.g. 0.5 Col. 33-40

FRSND e.g. 0.2 Col 41-48

FRORG e.g. 0.02 Col. 49-56

If values are used on card 7 and 8, then repeat card 8 for each particle on card 7, NPART (NPRT=5 then 5 card 8's are required)

CREAMS

EROSION AND SEDIMENT YIELD CODING SHEET

Initial Overland Flow Inputs

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____

Card No.										
9	DATOV e.g. 3.2 Col. 1-8	SLNGTH e.g. 206.0 Col. 9-16	AVGSLP e.g. 0.027 Col. 17-24	SB e.g. 0.020 Col. 25-32	SM e.g. 0.038 Col. 33-40	SE e.g. 0.024 Col. 41-48	XIN (3) e.g. 98.0 Col. 49-56	YIN (3) e.g. 3.5 Col. 57-64	XIN (4) e.g. 156.0 Col. 65-72	YIN (4) e.g. 0.0 Col. 73-80
10	NK e.g. 1 Col. 1-8									
11	XKIN (1) e.g. 1.0 Col. 1-8	KIN (1) e.g. 0.23 Col. 9-16	XKIN (2) Col. 17-24	KIN (2) Col. 25-32	XKIN (3) Col. 33-40	KIN (3) Col. 41-48	XKIN (4) Col. 49-56	KIN (4) Col. 57-64	XKIN (5) Col 65-72	KIN (5) Col. 73-80

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CREAMS

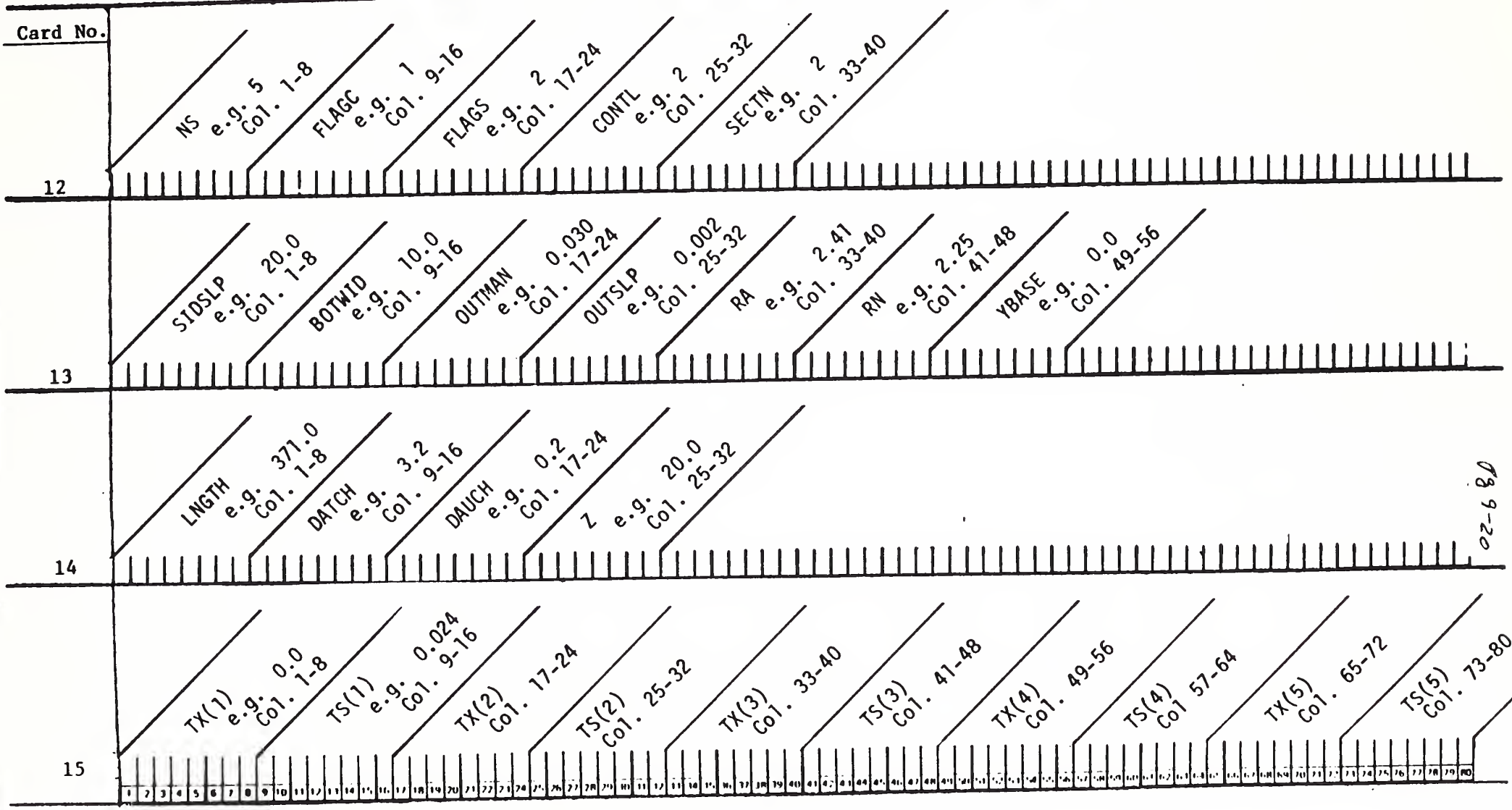
EROSION AND SEDIMENT YIELD CODING SHEET

Initial Channel Inputs

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____



CREAMS

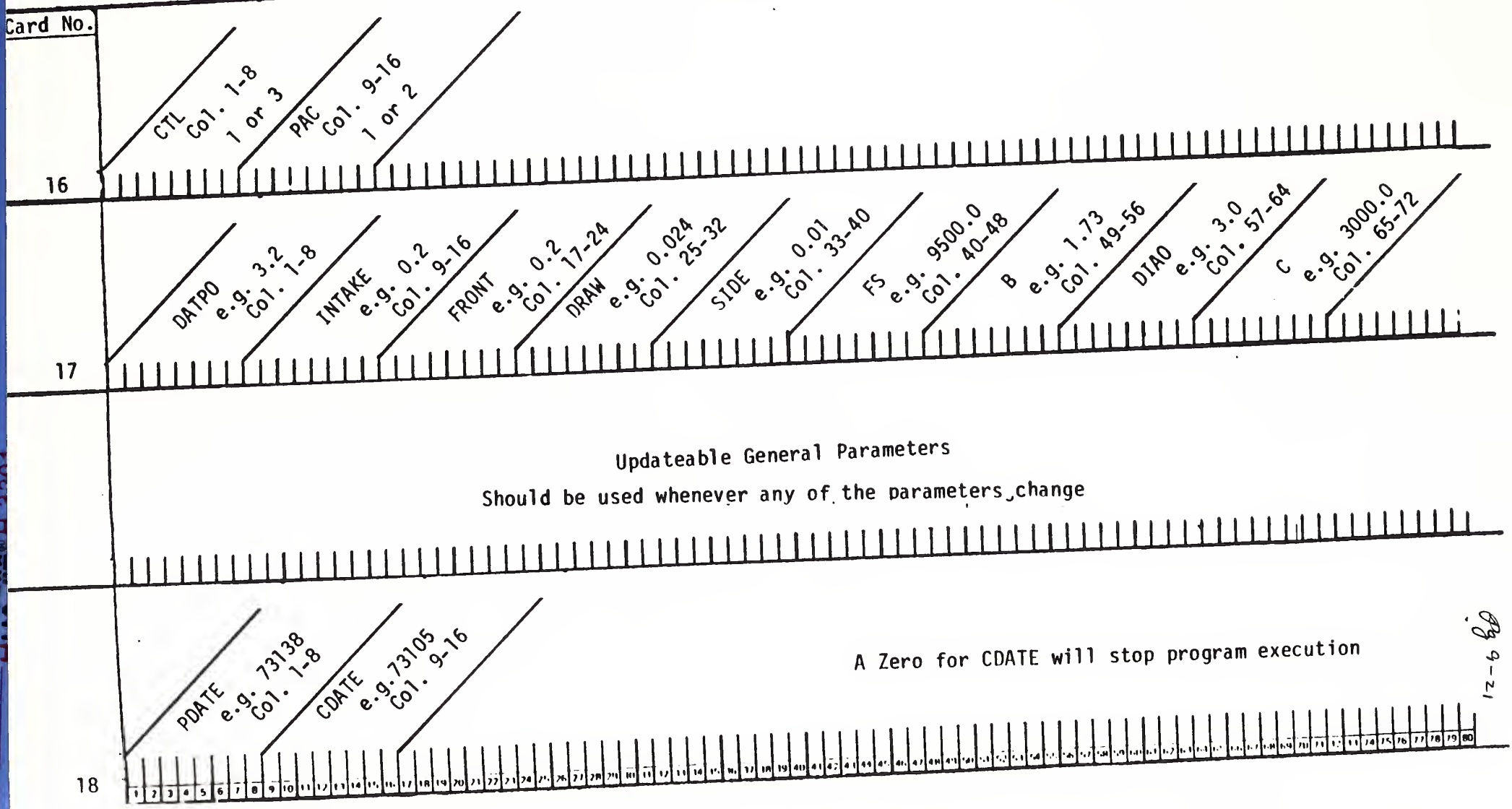
EROSION AND SEDIMENT YIELD CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Initial Pond Inputs

Watershed _____, County _____, State _____, Prepared by _____, Date _____



09 9-21

Note

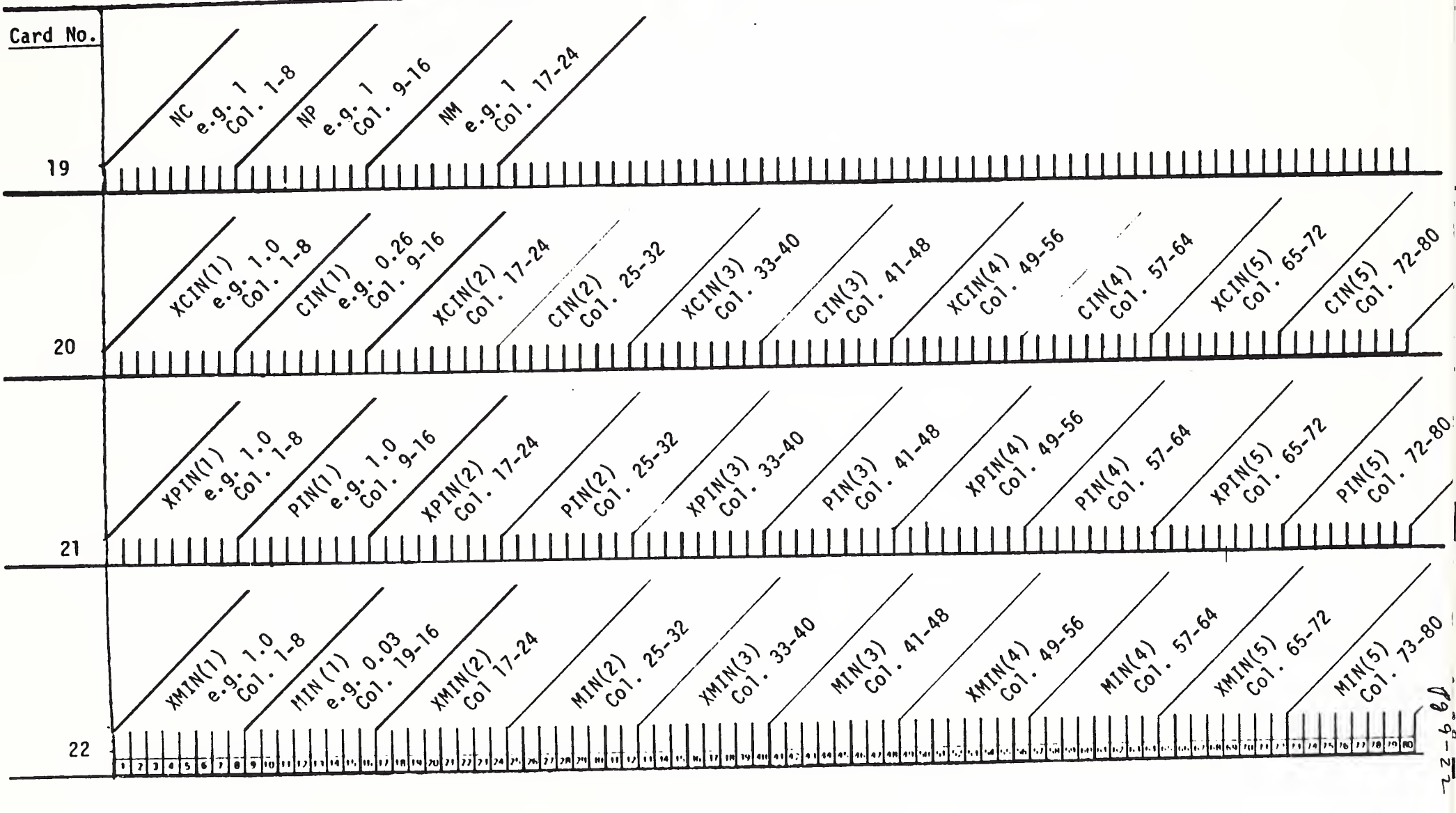
Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

CREAMS

EROSION AND SEDIMENT YIELD CODING SHEET

Updateable Overland Flow Inputs

Watershed _____, County _____, State _____, Prepared by _____, Date _____



Note

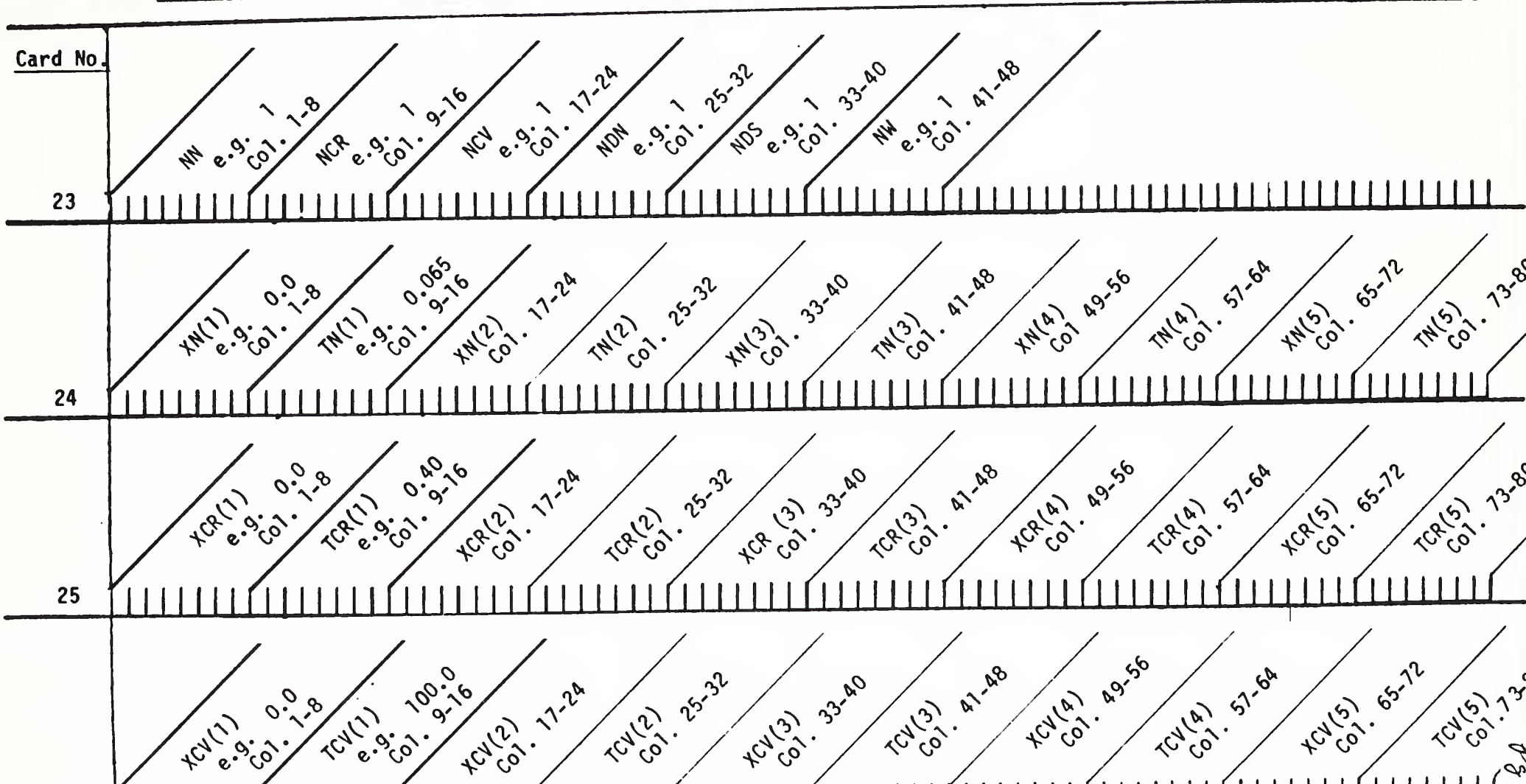
Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

CREAMS

EROSION AND SEDIMENT YIELD CODING SHEET

Updateable Channel Inputs

Watershed _____, County _____, State _____, Prepared by _____, Date _____



CREAMS

EROSION AND SEDIMENT YIELD CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____

Card No.																			
27	XDN(1) e.g. 0.0 Col. 1-8	TDN(1) e.g. 0.33 Col. 9-16	XDN (2)	Col. 17-24	TDN (2)	Col. 25-32	XDN (3)	Col. 33-40	TDN (3)	Col. 41-48	XDN (4)	Col. 49-56	TDN (4)	Col. 57-64	XDN (5)	Col. 65-72	TDN (5)	Col. 73-8	
28	XDS(1) e.g. 0.0 Col. 1-8	TDS (1) e.g. 0.33 Col. 9-16	XDS (2)	Col. 17-24	TDS (2)	Col. 25-32	XDS (3)	Col. 33-40	TDS (3)	Col. 41-48	XDS (4)	Col. 49-56	TDS (4)	Col. 57-64	XDS (5)	Col. 65-72	TDS (5)	Col. 73	
29	XW(1) e.g. 0.0 Col. 1-8	TW(1) e.g. 10.0 Col. 9-16	XW (2)	Col. 17-24	TW (2)	Col. 25-32	XW (3)	Col. 33-40	TW (3)	Col. 41-48	XW (4)	Col. 49-56	TW (4)	Col 57-64	XW (5)	Col. 65-72	TW (5)	Col. 73-	



pg 9-24

CREAMS

NUTRIENTS PARAMETER CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____

Card No.	
1	The first 3 cards are for title and miscellaneous information
2	
3	
4	BDATE (less than 1st storm) e.g. 73138 Col. 1-8; FLGOUT Col. 9-16; FLGIN Col. 17-24; FLGPST Col. 25-32; FLGNUT Col. 33-40
5	SOLPOR e.g. 0.41 Col. 1-8; FC e.g. 0.32 Col. 9-16; OM e.g. 0.65 Col. 17-24

Pg 9-25

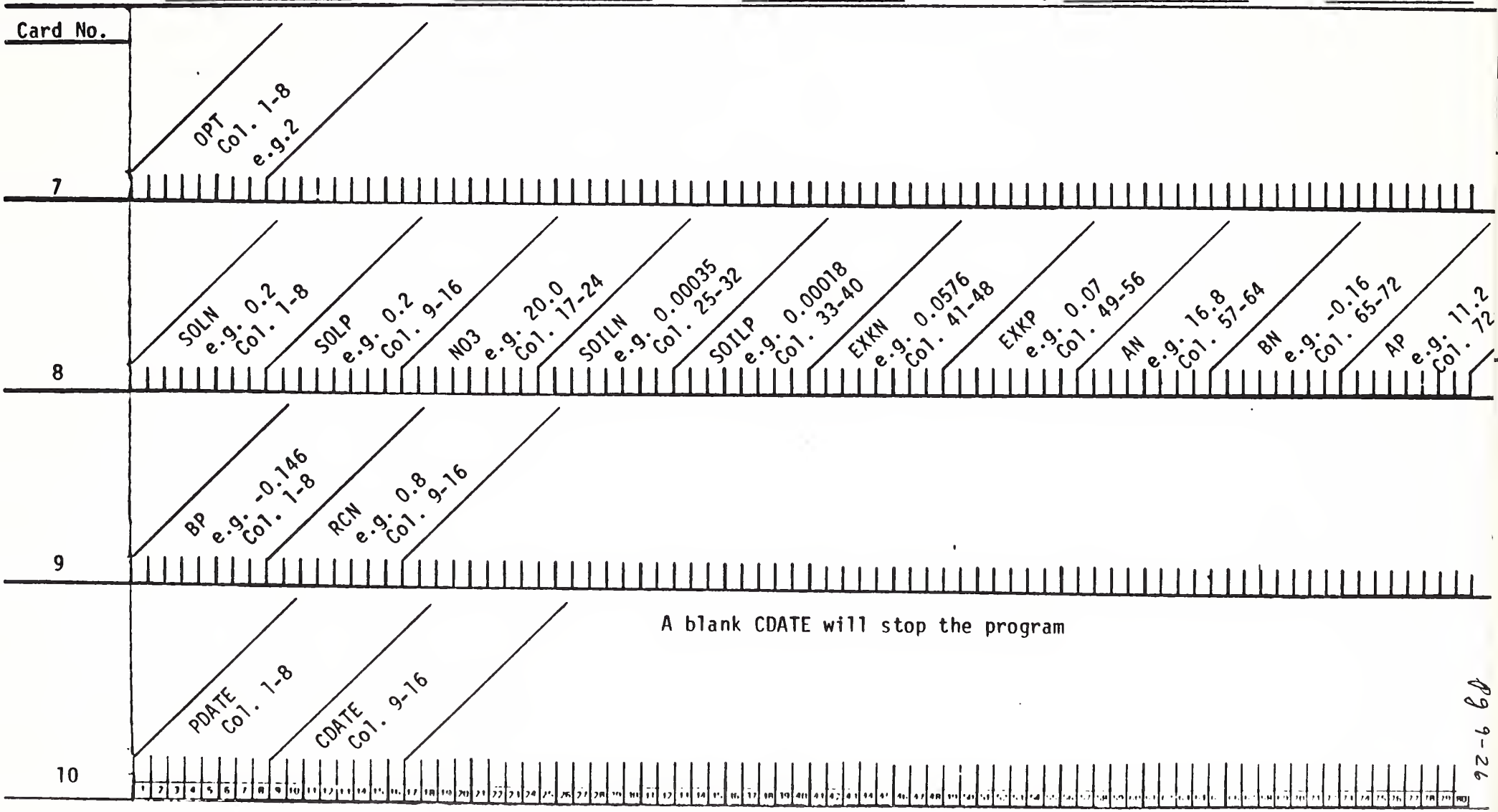
CREAMS

NUTRIENT PARAMETERS CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____



A blank CDATE will stop the program

CREAMS

NUTRIENT PARAMETERS CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____

Card No.

15 — NF e.g. 2 Col. 1-8; DEMERG e.g. 141 Col. 9-16; DHRVST e.g. 305 Col. 17-24

16 — For Option 1 Nitrogen Uptake: RZMAX e.g. 450.0 Col. 1-8; YP e.g. 5700.0 Col. 9-16; DMY use 2.5 Col. 17-24; POTM e.g. 47.0 Col. 25-32; AWU e.g. 570.0 Col. 33-40; PWU e.g. 780.0 Col. 41-48

17 — For Option 1 Nitrogen Uptake: C1 e.g. 0.0209 Col. 1-8; C2 e.g. -0.157 Col. 9-16; C3 e.g. 0.0128 Col. 17-24; C4 e.g. -0.415 Col. 25-32

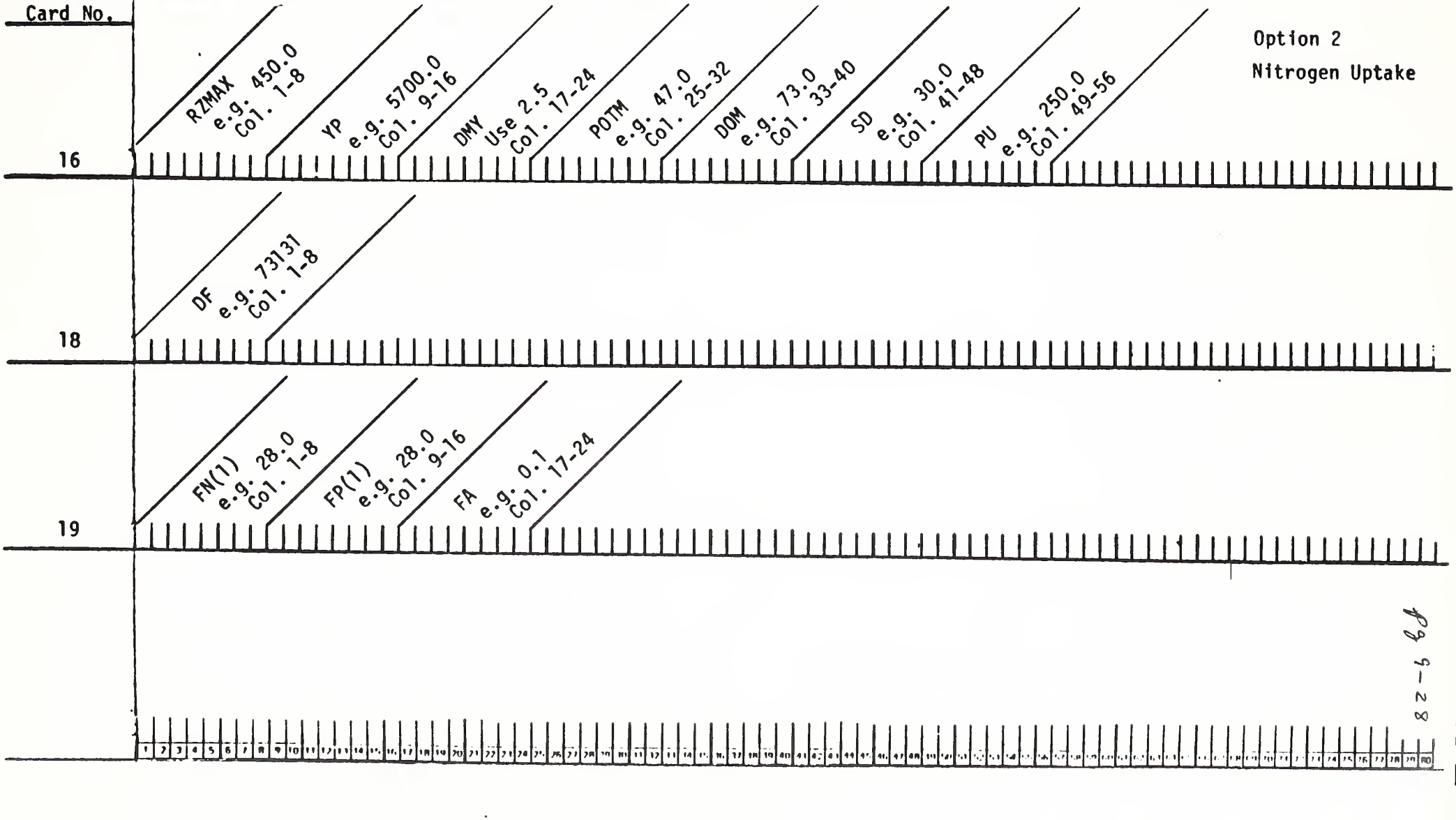
CREAMS

NUTRIENT PARAMETERS CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____



82-99

CREAMS

PESTICIDE PARAMETER CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____

Card No.	The first 3 cards are for title and miscellaneous information
1	
2	
3	
4	BDATE (less than 1st storm) e.g. 73138 Col. 1-8; FLGOUT Col. 9-16; FLGIN Col. 17-24; FLGPST Col. 25-32; FLGNUT Col. 33-40
5	SOLPOR e.g. 0.41 Col. 1-8; FC e.g. 0.32 Col. 9-16; OM e.g. 0.65 Col. 17-24
6	NPEST e.g. 2 (10 max.) Col. 1-8; PDATE e.g. 74120 Col. 9-16; PEDATE e.g. 75365 Col. 17-24

9-27-84

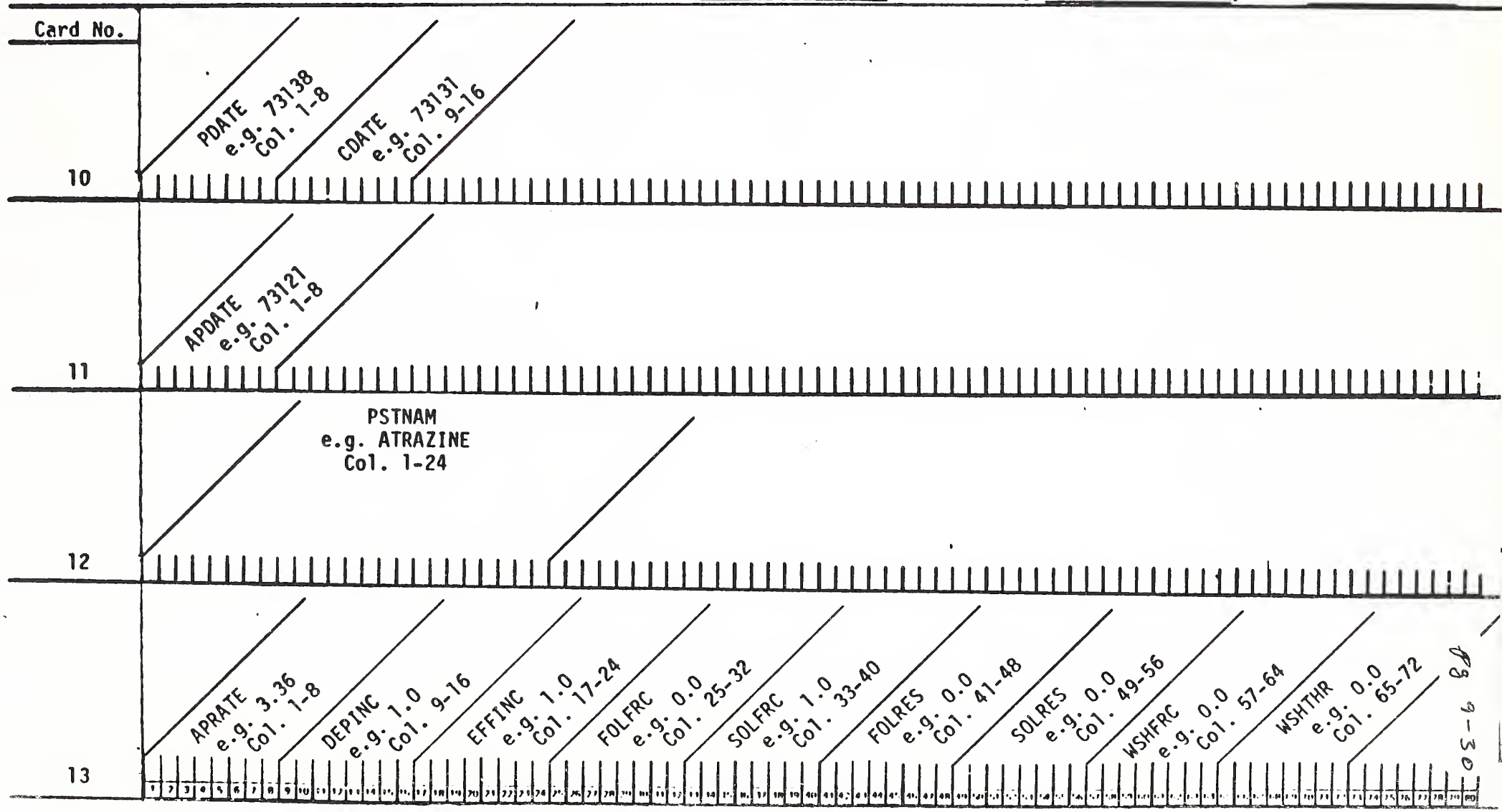
CREAMS

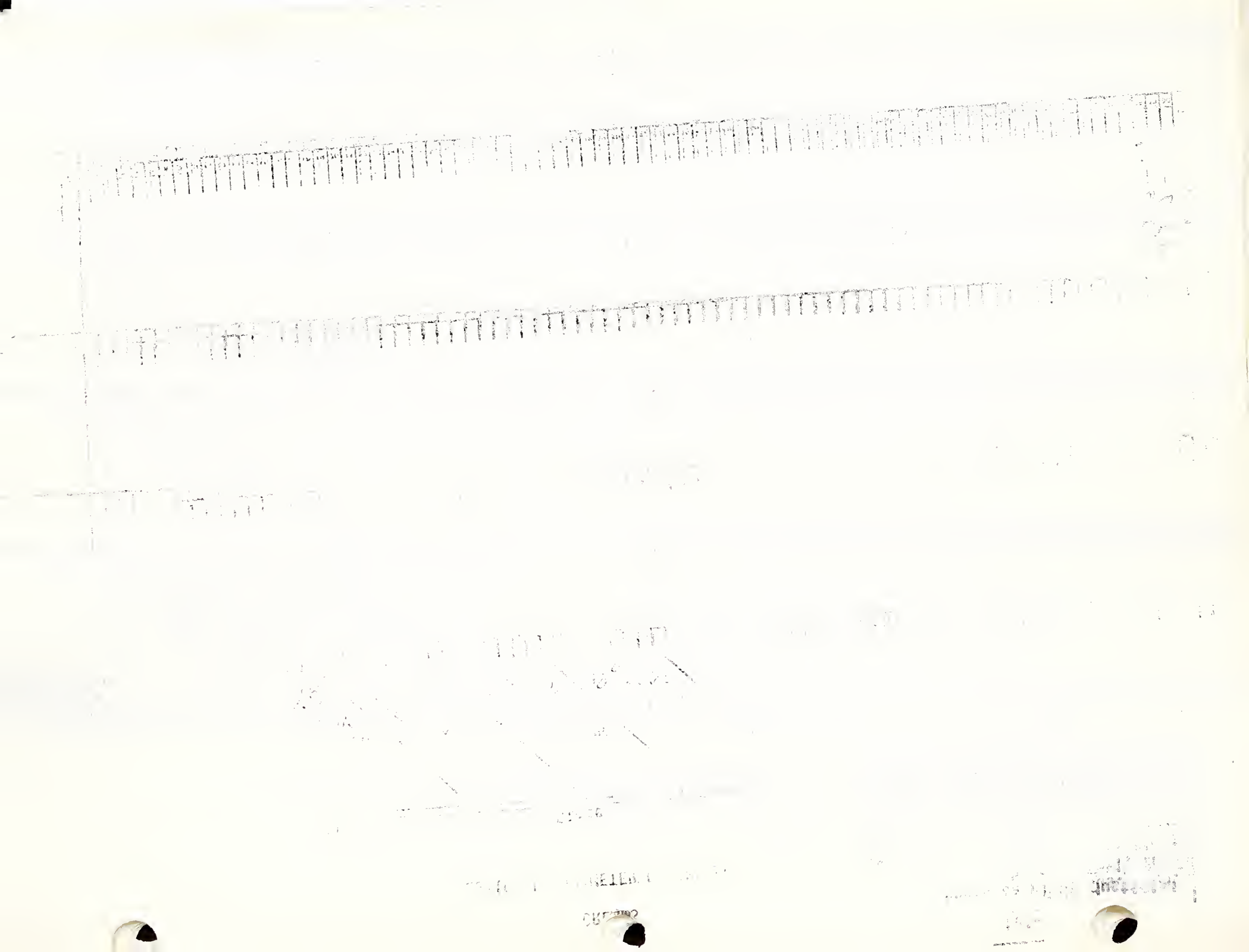
PESTICIDE PARAMETER CODING SHEET

Note

Values should be right justified. If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____





CREAMS

PESTICIDE PARAMETER CODING SHEET

Note

Values should be right ... ...
If e.g. values have decimal, then decimal is required in data field.

Watershed _____, County _____, State _____, Prepared by _____, Date _____

Card No.	SOLH2O e.g. 33.0 Col. 1-8	HAFLIF e.g. 0.0 Col. 9-16	EXTRCT e.g. 0.1 Col. 17-24	DECAY e.g. 0.10 Col. 25-32	KD e.g. 2.0 Col. 33-40
14					

1 2 3 4 5 6 7 8 9 10 ... 80

89 9-31

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